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OUR HEALTH, OUR FUTURE: A
COMPREHENSIVE HEALTH CARE PLAN
FOR HAMILTON-WENTWORTH:
HEALTH ACTION TASK FORCE ON WORKING
PAPER ON HOSPITAL-BASED EMERGENCY
SERVICES

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OUR HEALTH, OUR FUTURE

A COMPREHENSIVE HEALTH CARE PLAN
FOR
HAMILTON-WENTWORTH

HEALTH ACTION TASK FORCE WORKING PAPER
ON
HOSPITAL-BASED EMERGENCY SERVICES

prepared by
H-W DHC Staff
February 23 , 1996

Hamilton-Wentworth District Health Council

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Preface

The Health Action Task Force was mandated by the District Health Council in February 1995 to develop a comprehensive health care plan to guide the restructuring and management of health care services in Hamilton-Wentworth.

Working papers and supporting documents were developed by working groups, and in some instances, staff and consultants. These documents focused on acute care, emergency and land ambulance services, primary health care, continuing care, inclusive of long term care, chronic care rehabilitation and chronic care, mental health, a H-W community profile, health human resource planning , facilities assessments, health system integration, and results from open consultations.

Working group membership generally included Task Force members, District Health Council members, planning staff and Ministry of Health resource persons. Each working group was chaired by a member of the Health Action Task Force. The purpose of the working groups was to define the scope of the task, and determine the consultation processes required to inform the task. Working groups, and staff, were responsible for identifying relevant data and information, key stakeholders, key informants, relevant literature, and studies and reports. The reports of the working groups and staff reports were received as information by the Task Force.

All of the working groups were working concurrently. Some recommendations were made in the absence of evolving information, new analyses and facilities assessments. All recommendations were considered by the Task Force in the development of a comprehensive and cohesive health care plan.

For additional information, please contact the District Health Council at 570-0354 Ext. 159.

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1.0 INTRODUCTION

Early in October, two advisory groups were established to assist the Acute Care Working Group (ACWG) of the Health Action Task Force (HATF) with their review of hospital-based emergency services. These groups were called Critical Juncture Advisory Groups and were established to provide information and advice to the HATF at different times in their deliberation. Ten meetings were held involving over 30 individuals. The Acute Care Working Group was able to describe hospital emergency services and their utilization, current strengths and weaknesses, and a range of options to improve the existing level of service. These options are included in this paper.

Several additional meetings were held with providers and Ministry staff to gather routine and non-routine data to develop an accurate picture of emergency department utilization. Site visits were completed at all emergency rooms and urgent care centres. Detailed maps of emergency room utilization were prepared by McMaster University Health Intelligence Group.

Current Strengths

The City of Hamilton is served by four (4), twenty-four (24) hour hospital-based emergency departments and two hospital sponsored urgent care centres (UCC), operating 16 and 10 hours respectively.

- Hamilton Civic Hospitals - General Division, Emergency Unit
- Hamilton Civic Hospitals - Henderson Division, Emergency Unit
- St. Joseph's Hospital, Emergency Unit
- Chedoke-McMaster Hospitals, Emergency Unit
- Chedoke-McMaster Hospitals, Urgent Care Centre
- St. Joseph's Community Health Care Centre, Urgent Care Centre

The two urgent care centres do not accept ambulances. Walk-in patients who are critical are transferred to the emergency department. The total number of visits for all six facilities was 200,501 in 1994-95. Utilization has remained steady with slight reductions at the Chedoke UCC, but considerable growth at the St. Joseph's UCC in Stoney Creek. A synopsis of current utilization and allied emergency programs is included in the appendix.

The city's emergency rooms are supported by an enhanced pre-hospital care system, that includes the Regional Emergency Access to On-Call Health Professionals Program (R.E.A.C.H.) and Central Bed Registry programs, regionalized critical care services, Emergency Psychiatric Team (EPT) and Quick Response Service (QRS), and the critical care transport teams (adult, neonatal, paediatric).

Within the hospitals there are excellent teaching programs, nursing staff and progress is being made in bed management, fast track developments and reviews of emergency processes to streamline access to the emergency room (ER) by critical care and elective patients. There is good communication and cooperation between emergency departments, and residents have good access to emergency and urgent care sites across the city.

This report summarizes the issues discussed and the options considered. It is presented to the HATF for their consideration. The Emergency Unit plays a key role in the hospital system, 16.1% of all visits are admitted, and this makes up about 35% of all in-patient admissions. All hospitals are experiencing high levels of patient acuity. These pressures are reflected in the frequency emergency units must go on of critical care by-pass (7-9% of the time). Critical care by-pass signifies that the ER has temporarily exceeded all routinely available resources to receive critically ill or injured patients. Ambulance patients are therefore redirected to another emergency service in the city. One factor contributing to the problem is the lack of critical care or in-patient beds, resulting in long lengths of stay of admitted emergency patients in the emergency room. Admits to "no beds" or holdovers in the ER is another strain on emergency resources.

Since the majority of cases seen in the ER (89%) do not require immediate medical attention for life or limb threatening problems, the emergency units are playing a role in providing episodic primary care.

2.0 SUMMARY OF ISSUES AND RECOMMENDATIONS

Over the course of the review, eight (8) salient issues were identified which impact on emergency services in terms of accessibility, the quality of care, cost effectiveness and integration and coordination.

- Access and Coordination With Primary Care System
- Demand Management and Public Education
- Consortium of Providers
- Effective Regional Planning Body
- Fast Track Systems and Expanded Roles/Teams
- Regional Review to Improve Access/Processes
- Regional Data System
- Consolidation of Services

The Acute Care Working Group considered:

- changes in accountability, responsibility and regional planning
- strengths and weaknesses of consolidation
- limited discussion on the impact on education and research

No prefered emergency services option was presented.

3.0 ACCESS AND COORDINATION WITH PRIMARY CARE SYSTEM

Emergency departments are playing a role in the provision of primary care. Under 5% of patients are triaged as truly emergent. Larger retrospect studies that consider final assessments of patients in the emergency room find that only about 10% are truly emergent This is confirmed by admission rates through the emergency room that approach 15 - 16% The emergency room, staffed by physicians who have special training in emergency medicine, has provided the public with access to episodic primary care in Hamilton-Wentworth.

There is some evidence to suggest that the use of the emergency service for primary care can be reduced through patient education and telephone advice.[1] However, these systems have not been established in Ontario. Most patients present with urgent problems that require attention within a few hours. Therefore, patients appropriately need care but not emergency care.

One option to consider is to continue to provide the best customer driven primary care in the emergency room, which is the fail safe for deficiencies in the community. Alternatively, the community could access lower cost options in the primary care sector. From a funding perspective, it may make sense to have ER's deliver episodic primary care because they already have fixed costs. However, the ER can only provide episodic care and lacks opportunities for continuity of care. On the one hand, the funding structure in relation to the fixed costs of the emergency room makes sense to treat patients in the ER to lower the unit's fixed costs However, the ER can only provide episodic care and lacks opportunities for ongoing continuity of care. The options discussed in the following sections take into consideration two premises:

- that the emergency room will be the focus for emergent and urgent care and will continue to provide the high quality care for unscheduled patients. It will be desireable to re-direct deferrable cases to the primary care system.
- better quality and efficiencies can be achieved with proper links and protocols established between primary care physicians and emergency departments.

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[1] Optum Research and Business analysis Group. "Can Optum's Nurseline Help Optimize Ontario's Health Care Resources. Presentation to ADHO, 1996. (See additional articles listed in Bibliography.)

The Acute Care Working Group recognizes that 97% of patients have a family doctor. However, not all patients have access 24 hours for unscheduled care. In a survey completed in 1992, about 1/3 of patients who attempted to call the family doctor were referred to the emergency department for primary care by recorded messages.[2]

It is also important to note that emergency physicians also believe that a large portion of cases should be shifted to the primary care sector. Episodic care of deferrable / elective patients is more appropriately handled in the community. This maintains consistency, continuity of care and follow-up. Therefore, it is desirable to provide access to high quality emergency and urgent care in the ER for unscheduled cases, while at the same time, attempting to shift a large portion of deferrable visits to the community.

Option 1: To support the establishment of protocols, service agreements and links for planning and patient care between the primary care sector and the emergency service.

Pro:

Contributes to better quality and continuity of care. Reductions in utilization reduces costs to the health care system. Promotes better access to primary care physicians. Costs can be met within existing allocations. Results in the integration and coordination of services. Builds on current infrastructures and augments opportunities for research and teaching of community emergency medicine. Costs. $20,000.00 evaluation and public education.

Challenge:

Requires development time and good will of family physicians and emergency physicians to establish protocols and links, and to confirm availability of primary care services for deferrable / elective patients on a 24 hour basis. OHIP disincentives to reduce ER utilization needs provincial review. Concern not to duplicate services already available in the ER as this is costly. Public education and information needs attention.

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[2] Hamilton-Wentworth District Health Council. Emergency Services Review, 1992.

4.0 DEMAND MANAGEMENT AND PUBLIC EDUCATION

One option for shifting care to alternate providers (other than ER) is a community-based triage system. Emergency rooms, with nurses trained in emergency assessment and triage, are in a good position to educate the public regarding the use of the emergency and primary care systems, and to match the patient to the appropriate level of service. If this level of triage were available, and providing that primary care services were available, as much as 35 - 40% of patients could be seen outside the emergency room. For example, data from a California health maintenance organization (HMO) suggest that 90% of patients calling a medical advice and triage line who intended to go to a hospital emergency unit, actually chose a different option, such as, self-care or their family doctor (64%). Similar results were reported for free-standing emergency care centres. Similar networks established in New Brunswick, Quebec and Manitoba report anecdotal data that emergency room visits have dropped.[3] About 40 - 50% of callers are referred to primary care and the remainder are managed at home with appropriate information. Decline in visits at one Moncton hospital was 6.8% on a limited pilot project basis.

Option 2: Implement a 24-hour telephone advice and health information line staffed by nurses trained in triage to provide advice and treatment and to match patients with appropriate self-care, primary care or other services in the community.

Pro:

Reduces health costs by reducing demand. System is self-supporting through funds recovered from the OHIP system. Matches patient to appropriate level of service. Improves patient access 24 hours a day. Promotes integration between emergency and primary care sector. Builds on strengths of emergency and primary care system. Promotes critical mass opportunity for research and community emergency care. Provides expansion of professional roles. Supports alternative funding mechanisms, e.g. funding not fee-for-service (e.g. stipend for training, consultation and quality assurance) Promotes the accountability for dual systems. Opportunities for re-alignment to health promotion and target groups. Positive evaluations re: effectiveness of telephone services High consumer satisfaction. Costs: $610,000.00, for 24-hour nurse staffing and physician stipend. Estimated Capital $50,000.00.

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[3] Queen's Health Policy. "Telephone Information Services - A Preliminary Study of Current Services and Trends". 1995 (see also bibliography)

Challenge:

Development work re: algorithms; acceptability of protocols and referral destinations. Liability concerns. Decisions re: call-back or confidentiality. Multicultural concerns. Recruitment of emergency staff to work in telephone advice and triage program. Loss of income potential to ER physicians. Need for effective marketing across facilities. Ministry support re: local vs. provincial focus, vs. 1 - 900 independent telephone services.

5.0 CONSORTIUM OF PROVIDERS

In order to develop and coordinate the integration of the emergency and primary care systems, a new and innovative management model is required. The model should reflect the diversity of primary care providers in the community (e.g. physicians, paramedics, public health, home care, nutritionists, geriatrics, mental health, etc.). The management model would oversee, for example, the telephone advice and information service, develop protocols, market the system, complete evaluations, maintain the inventory of accessible primary care, etc. The model should be voluntary and draw on the strengths of each facility or agency. It would have an independent secretariat for coordination. The service may be independently incorporated or sponsored by a hospital or community-based agency.

Option 3: That a consortium of emergency and primary care providers be established to develop and to maintain the telephone advise and health information line linkages across emergency and primary care providers.

Pro:

Consortium will accomplish program development, program goals and will be accountable for the service. Builds on combined strengths of partners and promotes implementation. Promotes community awareness and marketing. Can be used as a model of governance with respect to system changes. Costs: $60,000.00

Challenge:

May raise issue of ownership among provider agencies. May be viewed as added administrative cost. Problem of buy-in. Early mistakes may lead to credibility concerns. Accountability structure to be addressed. Ministry support for service and management required.

6.0 EFFECTIVE REGIONAL PLANNING BODY

In 1992, the Hamilton-Wentworth District Health Council reviewed the emergency services system in Hamilton-Wentworth[4]. At that time, it recommended that a regional committee be established comprised of a broad spectrum of consumers and providers to address issues pertaining to emergency health services and to improve the organization and level of service delivery. Since the report, the Pre-Hospital Quality of Care Committee (PQCC) has moved to fill this mandate for the pre-hospital sector only.

The critical juncture advisory groups for hospital-based emergency services feel there is a considerable gap in planning for emergency services. This gap could be filled by extending the role of the Regional Emergency Services Program in conjunction with the Hamilton-Wentworth District Health Council (similar to the PQCC). However, the Regional Emergency Services Program is currently under review and may or may not be the appropriate mechanism. Regardless of the model, broader membership and a larger scope of planning responsibilities will be required.

Option 4: To establish a regional planning body for emergency medical services under the auspices of the Regional Emergency Medical Services Program in conjunction with the Hamilton-Wentworth District Health Council or alternatively under the Hamilton-Wentworth District Health Council in conjunction with the Pre-Hospital Quality of Care Committee.

Pro:

Will promote a comprehensive, integrated and cost effective emergency medical system for Hamilton-Wentworth. Better focus on identification of planning issues and priorities. Builds upon the strengths of existing partners. Costs for coordination to be determined. Identifies topics for research, teaching, special projects (e.g. cardiopulmonary resuscitation (CPR) training, disaster planning, "Do Not Resuscitate" (DNR) procedures, etc.) Costs: $35,000.00 part-time planning and support staff only.

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[4] Hamilton-Wentworth District Health Council, Emergency Services Review, 1992

Challenge:

May represent added costs to Regional Program or District Health Council to undertake. Priorities need to be reflective of partnership, not of sponsoring organization. Difficulty in maintaining support for regional EHS planning among autonomous organizations. Accountability and responsibility to make effective change ongoing concern in current regional structures. Need to raise profile of emergency issues in hospitals and primary care sector. Must be open to innovation and change, e.g. expanded roles of paramedics, emergency nurses, nurse practitioners, demand management, primary care, advanced patient directives.

7.0 FAST TRACK SYSTEMS AND EXPANDED ROLES/TEAMS

The critical juncture advisory groups recognize a need to improve the care provided to non-critical patients who are seen in the hospital emergency room. This represents the majority of patients whose average length of stay in the emergency unit is 2 - 3 hours. Waiting time is an important factor to patient satisfaction in emergency care. Further streamlining the care of non-critical patients would improve the level of service. A more cost effective approach could include an expanded role of emergency nurses in the assessment, care and discharge of the patient. Similarly, a multi-disciplinary team approach in the emergency department may improve quality while reducing the mandatory physician requirement[5]. The emphasis is on preventative and restorative approaches.

A fast tracking system for elective patients could be an innovative approach to patient care. The fast track system is based on a prompt assessment by a triage nurse and prompt access to diagnostic and therapeutic services. Resources required for a fast track approach include dedicated space, a multidisciplinary team and two physicians. The physicians interchange between the critical care area and the fast track system. If there are insufficient volumes fast tracking may not be viable. Alternately a part-time fast tracking system for peak periods could be considered. The role of nurse practitioners and expanded role nurses in the fast tracking service should be investigated.

Linking patients to primary care and fast tracking patients are competing interests - but if the goal is quality, both systems need enhancement and linkages simultaneously. For example, the concept of field triage can complement a triage system in the emergency room.

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[5] Hamilton Civic Hospitals - Henderson Division. Revised Proposal For Enhanced Services in the Emergency Department, 1995.

Option 5: Improve the quality of care for non-critical patients in the ER, by developing innovative and cost effective models of service provision, such as fast tracking and multi-disciplinary teams for restorative care.

Pro:

By nature these systems are designed to improve access in the ER and match the patient to the appropriate care provider. Opportunities exist for lower system costs through productivity and non-OHIP fees. Results in better integration of service providers. Fast track systems support professional development and avoidance of "burn-out". Opportunity for research and teaching through differentiation of client load. Builds and expands on existing emergency service strengths. High level of patient satisfaction. Avoidance of admission and better care with multidisciplinary restorative teams. Estimated Costs: $15,000.00 evaluation and feasibility study.

Challenge:

Potential upgrading of physical plants required. Potential reduction of OHIP renumeration. Issue of liability in non-physician component to be addressed. Costs of upgrading skills of nursing and allied health staff in emergency room environment. Fast track dependent on certain volume thresholds to bring in second on-call physician, or nurse practitioners, etc. Feasibility of nurse practitioner role in ER to be reviewed.

8.0 REGIONAL REVIEW TO IMPROVE ACCESS AND PROCESSES

A growing concern among emergency care providers is inadequate access for the consumer to quality emergency services. These problems, outlined below, stem from increasing levels of patient acuity in the ER and lack of critical care resources. These concerns are as follows:

- diminished access to critical care beds resulting in high levels of critical care by-pass (CCB) and concurrent levels of CCB (more than one ER affected)
- admitted patients held in the emergency room, resulting in long lengths of stay of admitted patients and overnight holdovers in the ER

To a large extent the CCB/holdover issues relate in part to the unavailability of acute care medical beds to the ER. This implies either a shortage of beds or how patients in existing beds are managed. Through effective bed management the Chedoke-McMaster Hospitals emergency department decreased ER holdovers by 56% in 1994-95. These improvements were realized across most services. Similar initiatives are being considered by the Hamilton Civics and St. Joseph's Hospitals collaborative initiative.

These problems impact on the ER's ability to assess, treat and stabilize critically-ill patients. Precious ER resources are used to care for the overflow of critical care and holdover patients. The proper authority is needed to make the necessary changes. Secondly, it makes more sense to develop, evaluate and introduce the necessary changes regionally. This would acknowledge that improvements in the emergency service can be evaluated regionally in a system's context.

While some of the concerns are site dependent, lessons can be learned from a regional perspective. This could result in better access and coordination across Hamilton-Wentworth.

Option 6: To support a regional review of techniques to improve access and quality for critical and elective patients in the emergency departments (e.g. Bed Management).

Pro:

By design, these options will improve access and quality by refocussing resources to emergency and elective care. Can be achieved through existing resources. Implies coordination and partnerships within organizations and regional quality teams across all facilities. Builds on existing strengths. Promotes accountability for targets/benchmarks within facility. Opportunity for systems (TQM) research. Leads to patient satisfaction. Cost effective use of resources. Costs: $10,000.00 evaluation.

Challenge:

Potential disruption in traditional bed use and physician practice patterns. Potential for fragmentation of regional approach, i.e. efficient hospital penalized by non-system hospital. Requirement for authority and accountability for change. Requirement for changes in policy and procedures (e.g. beds allocated for ER admissions).

9.0 REGIONAL DATA SYSTEM

Emergency departments and urgent care centres have variable capabilities to collect, retrieve and analyse (for planning or management purposes) emergency utilization data. On the whole, most data systems are comprehensive, however, they have evolved independently of each other and therefore are not standardized across the Region. Although nursing triage categories were standardized in 1991, they are not used consistently across institutions and some categories are not used at all (booked elective).

A second concern is the lack of meaningful information, leading to the "data rich - information poor" problem. For example, there is no index for case severity in the ER, in terms of post-triage. A scale called Apache 2 is used in the ICU to track patient outcomes and resource use. The third concern is the lack of electronic links across all emergency rooms. This can be used to track patients, transfer records and X-rays digitally and link to the primary care network. This capability has already been demonstrated in the Central Bed Registry Program that monitors emergency room status. A fourth challenge involves clinical decision making. This could be extended to physicians and allied health care providers with expanded role responsibilities.

Option 7: Develop information links and shared data-bases across the Regional Emergency Room Network, based on standard protocols, to span the continuum of care providers (e.g. primary, emergency).

Pro:

Information systems are a form of vertical and horizontal integration. Standardized data leads to valid and reliable basis for planning and decision making. Regional approach saves costs in longer term. Data used in evaluation and service planning to improve access and quality, resulting in better standards and patient outcomes. Reduction in duplication of information and tests, X-rays. Costs: $50,000.00 development.

Challenge:

Development work on standardization and system architecture. Compatibility across existing systems. Security and confidentiality of information. Staff resources for system management and analysis. Acceptability across hospitals and primary care system.

10.0 CONSOLIDATION OF SERVICES

The rationale cited in more current reviews of hospital restructuring[6,7,8] for the closure or reduction of hospital emergency departments is as follows:

- inappropriate role in primary care
- emphasis on urgent and emergent care only
- proximity / access to other ER's
- fewer ER's can meet the demand
- maximize physician resources
- potential cost savings
- better consultant coverage
- improved critical mass for research / training

Emergency units in hospitals are staffed and equipped to care for persons requiring immediate or urgent assessment, diagnosis and treatment of illness ro injury. The four emergency units in Hamilton also provide episodic primary care.

Data indicate that the four emergency units share distinct but overlapping catchment areas and coordinate and balance the critical care load across the city.

The emergency units account for 36% of all in-patient admissions, and about 20% of all admissions to ICU beds. All 4 acute care hospitals share a total of 17 critical care regional programs. Emergency room admissions accounted for the use of 638 acute medical beds across the city, at 100% occupancy in 1994-95, or about 40% of all acute in-patient beds. These factors indicate the co-dependencies of the ER's and in-patient acute care services in hospitals. Reconfiguration of emergency departments would require shifts in acute and critical care services and enhanced transportation services.

Indicators of high capacity are the current level of CCB and the length of stay of admitted patients, as well as holdovers or "admits to no beds" prevalent at certain facilities.

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[6] Metropolitan Toronto District Health Council Directions for Change: Toward a Coordinated Hospital System for Metro Toronto, 1995

[7] Essex District Health Council Reinvesting the Savings: The Redesign of the Essex County Health System A Discussion Paper

[8] Thames Valley District Health Council: London Acute Care Teaching Hospitals' Restructuring Committee, 1995

The Acute Care Working Group believes that all necessary back-up resources must be in place before an ER is closed. As an example, in a 60-day period, the Henderson emergency department had over 725 patients (over 10 per day) held over in the ER awaiting admission Many stayed overnight in the ER Lack of back-up services would place inordinate burden on other facilities who already face this problem.

The Acute Care Working Group has recommended the following guidelines for the consolidation of emergency services:

- that primary care in the ER should be redirected to the community

- at minimum each emergency room must have access to a full service secondary hospital

Through community triage and a system of demand management it may be possible to reduce the number of ER visits by 33,000 over 3 to 4 years. New volumes would be 166,000. If only emergency departments' utilization is considered (not the UCC's) we would then be dealing with a volume of 122,000. Assuming each ER can handle 45,000 visits annually the needs of the system could be met within three ER sites.

With a demand management system linked to enhanced and accessible primary care services in the community, as much as 35.8% of all visits to the ER could be targeted for redirection. With this scenario, the adjusted ER visit volumes for 1994-95 would be 94,437 and projections for the years 2000 and 2005 would be 103,359 and 110,782 respectively. These adjusted volumes could be accommodated in three emergency facilities.

As noted above, given the clinical co-dependencies between the emergency unit and the hospitals' acute care services, emergency units should be associated with a full range of services at least on the secondary level. Currently, the acute care working group is determining the appropriate capacity of acute care hospital services. This will have an impact on the siting and capacity of emergency units in Hamilton-Wentworth.

Quality emergency call in an efficient and effective emergency department requires:

- a full service acute care hospital at the secondary level
- effective bed management strategies to manage patient stays, provide response flexibility
- effective public education strategies to promote patient access to appropriate care services
- accessible, coordinated and flexible primary health care network
- 24-hour access across to emergency services
- effective regional planning
- regional data systems
- community traige systems

APPENDIX

CRITICAL JUNCTURE ADVISORY GROUPS

REVIEW COMMITTEE OF THE EMERGENCY HEALTH SERVICES REGIONAL PROGRAM

Dr. F. Baillie, Chief of Staff - Chedoke-McMaster Hospitals
Dr. A. Bellissimo, Emergency Services - St. Joseph's Hospital
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Dr. M. Cohen, Associate Dean Health Services - Faculty of Health Sciences
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Dr. Hugh Fuller, St. Joseph's Hospital
Dr. Ernest Fallen, Chedoke-McMaster Hospitals
Dr. Marion Lyver, EHS Branch

APPENDIX 2

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APPENDIX 3

GLOSSARY OF TERMS

CENTRAL BED REGISTRY

Computerized bed registry that allows health care professionals in Hamilton hospitals and the ambulance dispatch centre to determine bed availability for a patient's particular needs.

CRITICAL CARE BY-PASS

The status of each emergency department is monitored by the REACH and Central Bed Registry programs. Critical care by-pass signifies that the ER has temporarily exceeded all routinely available resources and therefore it is unsafe for this facility to receive any critically ill or injured patients.

EPT

The Emergency Psychiatric Team based at St. Joseph's Hospital is a regional program providing emergency psychiatric consultation in the Region.

EMERGENCY DEPARTMENT

A unit within a hospital that is specifically designated, staffed and equipped to care for persons requiring immediate or urgent assessment, diagnosis and treatment of illness or injury.

H.M.O.

Health Maintenance Organization.

Q.R.S.

Quick Response Service. The service provides enhanced services to patients in their own home or at a respite location in order to avert a hospital admission. Also prevents unnecessary use of hospital emergency departments.

R.E.A.C.H.

Regional Emergency Access to On-Call Health Professionals. Service helps physicians in Central West find specialist and specialty beds for patients who need emergency care.

TRIAGE

Sorting or classification of patients according to the nature and urgency of their illnesses or injuries and assigning priorities for treatment.

URGENT CARE CENTRE

A freestanding community-based or ambulatory care centre that provides treatment for minor and urgent (non-life threatening) health problems on a non-appointment basis.

BACKGROUND PAPER: HOSPITAL EMERGENCY SERVICES IN HAMILTON-WENTWORTH

SUMMARY OF RESOURCES AND UTILIZATION

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V. Critical Care Bypass and Holdovers in the ER

VI. Costs of Emergency Units

VII. Demand Management and Utilization Projections

VIII. Qualitative Issues

Appendices

I. SUMMARY OF HOSPITAL EMERGENCY SERVICES

The City of Hamilton is served by four hospital-based emergency units, providing assessment, treatment and referral on a 24-hour basis. In addition, two facilities are operating as ambulatory "Urgent Care" centres, which accept patients on a walk-in basis for urgent and deferrable care: 1) St. Joseph's East End Community Health Centre, located in Stoney Creek, and 2) Chedoke-McMaster Urgent Care Centre, located on the Chedoke Hospital site. These facilities operate 16 hours (8:00 to 24:00), and 10 hours (12 noon to 22:00) respectively. They do not provide critical care or accept ambulances, but do have resuscitation equipment. In 1994-95, all six facilities registered a combined total of 200,501 visits.

The Emergency Rooms are supported by an enhanced pre-hospital system, including 911 (118,000 calls in last 12 months), paramedic base-hospital, 14 paramedics and tiered response including fire fighter defibrillation. The paramedic complement will increase to 28 in the near future.

Other emergency and critical care services that support local emergency services include:

- Regional Emergency Access to On-Call Health Professionals (REACH)
- Central Bed Registry Programs
- 16 regionalized programs and services
- Critical Care Transport Teams (paediatric, neonatal, adult)
- Regional Quick Response Service (QRS)
- Regional Emergency Psychiatric Team (EPT)

All hospitals support excellent emergency teaching programs. The emergency nursing staff is cited as a specific strength. Progress is being made in bed management, two-track systems, and the review of processes in the ER to promote better access and use of emergency resources.

During the review, it was noted that there is good communication and cooperation between hospital emergency departments and urgent care centres, and residents have good access across the city. The emergency units continue to play a significant role in primary care and account for a large proportion all of admissions to hospitals (medical/surgical and specialty units).

II. UTILIZATION OF EMERGENCY SERVICES AND CATCHMENT AREAS

In 1994-95, the six emergency and urgent care facilities registered a combined total of 200,501 visits (Appendix Table 1). The 1995-96 six month year-to-date total is 104,866, which indicates that the facilities will meet, or perhaps exceed, their previous year totals.

However, the summer months traditionally experience higher volumes, which are reflected in the first six month totals.

Table 2, in the appendix, breaks down emergency unit utilization by shift. The breakdown by shift in 1994-95 was as follows: 17% Midnight to 08:00; 41.7% 08:00 to 16:00; and 41.3% 16:00 to 24:00. The four emergency units see approximately 68 individuals throughout the city after midnight. The average for each emergency unit was as follows:

AVERAGE EMERGENCY VISITS BY SHIFT, 1994-95

Average Volume	Henderson	McMaster	General	St. Joseph's	Average
Midnight - 08:00	16	13	18	21	68
08:00 to 16:00	39	38	42	48	168
16:00 to 24:00	38	36	41	50	166
Daily	93	87	102	120	402

Over the previous five years, total visits to the four emergency units and two urgent care centres increased by 13.6%, from 176,463 to 200,501 (Table 3). This compares to reductions of 6% in Central West and 13% across the Province. The reductions in Central West and across the Province might be explained by reductions in emergency departments in certain areas including Shelburne, Brantford, Guelph and Niagara-on-the-Lake. It is assumed, although no evaluations have been conducted, that patients are using other emergency services or after hours primary care services.

In Hamilton-Wentworth the growth in visits over the last five years is largely a result of the establishment of St. Joseph's East End Community Health Centre in Stoney Creek. Its volume increased by 26% since 1992-93. Chedoke-McMaster experienced a 20% drop in visits as a result of the conversion of the to a 16 hour facility and then to a 10 hour facility. Despite these facility changes, volumes at the remaining three emergency sites have remained constant (Figure 2).

Catchment areas for the six emergency units and urgent care centres were derived from an analysis of the first three postal code data for all visits over a two month period. Postal code maps for each facility appear in the appendix (Map 1a to Map 6a). Visits were also plotted on dot maps by the McMaster Health Intelligence Group (Map 1b to Map 6b). Finally, data from the District Health Council's 1992 emergency services review (4 day survey data), was also plotted to confirm the more recent trends. The data are limited in so far as it gives the patient's residence code, not where the patient happened to be when care was needed. It is therefore difficult to draw major conclusions.

Nevertheless, the following catchment areas were identified for each facility:

Hamilton General:	North Central, North East
Henderson General:	Upper Mountain Central, East and Southeast
St. Joseph's Hospital:	Central; Upper Mountain West, Central and South
McMaster:	West, some West Mountain
Chedoke UCC:	West Mountain
St. Joseph's UCC:	North East, East

About 10 - 15% of cases were either non-local postal codes (or some missing data). This suggests there is a significant inflow of patients from areas adjacent to Hamilton-Wentworth (Burlington), and across Central West. This could also be a function of the in-flow of the adjacent labour force.

Some emergency units and urgent care centres share catchment areas and this is particularly evident in the West Mountain, South Mountain, Central Mountain, East Mountain and Southeast Mountain. The lower city, particularly the North Lower Mountain and East Lower Mountain, also share emergency facilities. Upper mountain area residents access four facilities, whereas lower mountain residents access the Hamilton General and St. Joseph's Hospitals. Lower mountain residents also utilize St. Joseph's Urgent Care Centre in Stoney Creek.

III. TRIAGE DATA

In 1991, the Hamilton-Wentworth Regional Emergency Services Committee accepted the following nursing triage categories to be used by all emergency and urgent care facilities:

Emergent:	Requires immediate medical attention; delay is harmful to the patient; disorder is acute and potentially threatens life or function.
Urgent:	Requires medical attention within a few hours; in danger if not attended; disorder is acute but not necessarily severe.
Deferrable (non-urgent):	Does not require the resources of an Emergency Service; disorder is minor or non-acute.
Booked Elective:	Planned in advance.

The nursing triage codes for each facility in 1994-95 appear in Table 4. Most facilities have similar triage categories, however, the urgent care centres reported having fewer urgent cases but a higher proportion of deferrable cases. There is some concern whether the triage codes have been evenly applied (or understood uniformly) by all facilities.

Secondly, they have not been validated on a regional basis. Therefore, their use for planning purposes are limited.

The nursing triage codes for the four emergency units appear in Figure 3. Most visits (85%) are considered urgent, and therefore, the patient appears to be making the right decision to seek care. About 2.6% are emergent, and 12.3% are deferrable/elective.

As noted, nursing triage categories are limited. For the most part they are determined by the presenting complaint of the patient. Once a more detailed assessment is completed by the physician, a more definite conclusion can be made, with respect to actual urgency.

In more recent studies of appropriate use of emergency facilities (Table 5), it was determined that most patients report having a family doctor. Physician ratings of patient urgency across three large studies in Ottawa, Niagara and Hamilton were similar. More patients are classified as urgent (5 - 11%) compared to nursing triage codes. Also, at final assessment more cases were found to be deferrable (36 - 52%). In retrospect, many physicians in these studies felt that patients did not require the services of an emergency department for treatment (58 - 64%), but some studies indicated that about half of these patients did not have access to an alternative at the time. With this in mind, perhaps as much as 30 - 40% of visits could be seen in the doctor's office during regular office hours, and perhaps a higher number if after hours primary care services were available.

IV. ADMISSIONS THROUGH THE EMERGENCY DEPARTMENT

The inter-relationship between the emergency unit and the hospital is significant. The emergency unit has been described as the "gateway" to the hospital and the "safety net" for the community. For the hospital, the emergency unit is an extension of the hospital's critical care service, and much of the workloads for laboratory and radiology services originate directly or indirectly from the emergency department referral.

In 1994 - 95, Hamilton's acute care hospitals received 23,681 admissions from the emergency units alone (Table 6). About 16.1% of all visits to the four emergency units in 1994 - 95 were admitted. The 23,681 admissions through the emergency departments represents 36.2% of all inpatient admissions to the four hospitals in that year (Table 7).

Table 8 compares emergency unit utilization and admission rates for London and Hamilton. The rate of admissions are similar, however Hamilton exhibited a higher admission rate of 15.3% in 1993-94. Secondly, compared to London, a higher proportion of patients admitted to Hamilton-Wentworth hospitals were admitted through the emergency units (30.7% vs. 26.9%). This may be one indication of higher acuity levels for the Hamilton emergency units.

Finally, compared to London, all six emergency units and urgent care centres in Hamilton-Wentworth exhibited lower rates of use by the general public (411 per 1,000 vs. 424 per 1,000). The rate of utilization for Hamilton is also lower than Ontario and Canadian rates Although using rates per 1,000 is a rough indicator of emergency unit utilization, it shows that Hamilton does not exhibit extraordinarily high use rates compared to other geographic areas. This probably reflects better accessibility to primary care and after-hours care in urban centres.

The 23,681 admissions to Hamilton hospitals originating in the emergency department has an impact on inpatient services Table 8 illustrates the major patient service groups for emergency admissions. For example, emergency units generate 94.3% of all admissions to trauma services (n = 215). Figure 5 shows the main patient service groups that are largely affected by admissions through the emergency department. The major patient service groups include general medicine, cardiology, general and orthopaedic surgery, respirology, pediatric medicine and a range of other services. It can be said that these services are co-dependent upon the emergency service and vice versa. The concept can be expanded to include all the clinical and infrastructure supports that are required to respond to admissions through the emergency department.

Table 9, in the appendix, delineates emergency admissions by patient service group for each of the four acute care hospitals. A few key differences emerge with respect to individual facilities as follows:

Henderson:	cardiology, gastroenterology, neurology, respirology, urology, haematology
St. Joseph's:	nephrology, pediatric medicine, urology, gynaecology, psychiatry, cardiology
McMaster:	pediatric medicine, pediatric respirology, pediatric surgery
General:	neurosurgery, ortho surgery, plastic surgery, trauma, general medicine, cardiology

These patient service groups are shared to the individual emergency services or shared across the hospitals. Emergency department admissions to the major services noted in Figure 5 have an impact on a wide range of hospital support services.

An indication of the impact of emergency admissions on inpatient beds is shown in Table 10. In 1994-95, emergency admissions alone generated the need for 62 special care beds operating at 100% occupancy. The special care units that are co-dependent on emergency services include intensive care units (24 beds), coronary care units (20 beds), burn trauma unit (6 beds), and the respiratory intensive care unit (6 beds). Changes in the location of emergency units, that assess, stabilize, and treat these patients, would require changes in the location, size and roles of some of these special care services. This would have an impact on pre-hospital services and transportation as well.

Table 11 considers the impact of the emergency admissions on special care beds for each hospital. Chedoke-McMaster hospital required 10 special care beds to accommodate emergency admissions and these are divided among intensive care and coronary care units. Hamilton General required 17 intensive care beds at 100% occupancy and 4 coronary care beds. The Hamilton General also required 6 burn trauma unit beds at 100% occupancy. St. Joseph's Hospital required 18 special care unit beds for intensive care. Finally, the Henderson General Hospital required 10 beds for emergency admissions, primarily in the coronary care unit (6 beds) and the ICU (4 beds).

Emergency rooms often maintain critical care patients in the ER prior to admission. This has a major impact on the critical care role of the ER.

V. CRITICAL CARE BY-PASS AND HOLDOVERS IN THE ER

The status of each emergency department in Hamilton is monitored by the REACH and Central Bed Registry programs and the Central Ambulance Communication Centre. Critical care by-pass signifies that the ER has temporarily exceeded all routinely available resources. Physician, nursing and/or equipment resources are not immediately available. It is therefore unsafe for this facility to receive any critically ill or injured patients as patient care will be compromised. This status must be maintained for a limited time only and must be renewed every 30 minutes or subsequently downgraded.

In the first six months of 1995, Hamilton emergency departments declared critical care by-pass between 5 - 9% of the time (Table 12). On thirty-three occasions both lead and trauma back-up centres were on concurrent by-pass. On twenty-six occasions, three hospitals were on CCB. On ten occasions all four Hamilton hospitals were on concurrent by-pass.

The incidence of CCB in Hamilton-Wentworth have increased over the previous 5-1/2 years (Figure 6). The problem is multifactorial, and is felt to include increasing patient acuity, lack of inpatient beds and bed management issues. The rates of CCB are lowest in the summer and peak in the Fall/Winter, and in the early Spring.

Patient holdovers in the ER are an added strain on emergency resources. Problems again stem from the lack of beds, lack of bed management and increased patient acuity. Many patients are held overnight in the ER prior to admission. Often a brief stay in the ER may avoid the need for admission. Changes in the roles of ER's in the city must also consider the question for holdovers.

VI. COSTS OF EMERGENCY UNITS

The global budgets of all six emergency and urgent care facilities in Hamilton-Wentworth appear in Table 13. The total global costs were $13 million, in 1992-93. Average OHIP billings by emergency physicians is equivalent to approximately $42, bringing the total billings to approximately $8.1 million. This figure may be lower given that some emergency rooms were on alternate billing programs. The range is likely $6 - 8 million for OHIP in 1992-93.

Total pre-physician costs per visit in the ER can be calculated by dividing the global costs by the number of visits. The pre-physician cost on a per visit basis was $68 in 1992-93. This cost also includes the two part-time urgent care centres.

Emergency room costs are not directly comparable to the costs incurred by family doctors The latter do not provide service 24 hours, do not accept ambulances or critical care patients. Emergency rooms are staffed and equipped to handle major emergencies 24 hours, but also respond to the needs of non-emergent patients Global budget fixed costs per visit would actually be lower if emergency rooms could see more patients. A visit to a primary care physician would be more cost-effective, since the private physician must pay for his/her own infrastructure costs This would also maintain continuity of primary care.

Health system savings could occur through demand management approaches to reduce the need to be treated in the emergency room This could result in OHIP savings and perhaps savings through emergency room consolidations (e.g. infrastructure re-alignment).

VII. DEMAND MANAGEMENT AND UTILIZATION PROJECTIONS

Demand management refers to reducing health costs by reducing the need and demand for medical services. This can be achieved by providing the consumer with lower cost alternatives that achieve effective results. For example, in HMO environments in the United States, providing consumers with information and guidelines about self-management can lower rates of utilization by 7 - 17%. Information can empower consumers to make better use of health care and lower health care costs.

For example, telephone advice lines staffed by trained nurses in emergency and telecommunications can reduce emergency room utilization. In a recent evaluation of a California-based service, 90% of patients who intended to visit the emergency room did not do so after telephone advice (Table 14). Sixty-four per cent (64%), also did not require a visit to a family doctor. As noted in Table 15, most patients intending to visit the emergency room received self-care (25%), called their doctor (39%), or made other arrangements (26%). Patients intending to visit a freestanding urgent care centre also chose a lower option, 89% of the time. Self-care was 32%, and other options reached 57%

A review of telephone information services in Canada and the United States appears in Exhibit 1. Based on evaluations of demand management systems in New Brunswick, Manitoba and Quebec, it is possible to reduce the number of emergency room visits if such a system operated in Hamilton-Wentworth.

Tables 16 and 17 project emergency room volumes and patient acuity using a scenario of demand management. Using a conservative target of 6% reductions each year, visits can be reduced by 33,883 or 16.9% over three years. Using this option, by the year 2000 there would be a decrease in visits, but an increase in patient acuity. Under a system of demand management (6% reductions), the utilization rate would drop from 411 visits per 1,000, to 333 visits per 1,000 (Table 18). By the year 2021, visits to the emergency rooms would be projected to decrease by 44,184 (Figure 7).

If emergency visits were controlled by the hospitals using a demand management system, the Region would only require three emergency rooms to handle the load, if primary care services could accommodate the reduction of deferrable visits in the community and if each emergency room could accommodate about 40,000 visits (Table 20). This, however, does not address the critical care co-dependencies between the emergency unit and the in-patient general and speciality units, which would require role changes and shifts in critical care services.

Opportunities to shift primary care to the community are being explored in many jurisdictions. With demand management in place and with improved access to primary care services in the community, the volumes of emergency unit visits should be reduced by the number of deferrable/elective patients that currently use the emergency department. The primary care system is a more cost-effective alternative than the ER. The latter is an expensive resource and does not provide the continuity of care compared to family doctors. The enhanced primary care system will require considerable time to develop and is currently the subject of an ongoing provincial review. It may include 24 hour accessible HSO/CHC models, family physician group practices, group supported after-hours clinics and neighbourhood primary care teams. In any model, the ER's and urgent care centres should form part of an integrated and coordinated primary care system. Public education and information will be a critical component of the new system, which will be based on a seamless, integrated and accessible network of primary care providers.

It is estimated that as much as 35.8% of the visits to hospital emergency departments should be targeted for reduction. This would include patients whose problems could be assessed and treated in another setting and whose conditions are not dependant upon treatment within 24 hours (Table 5).

In 1994-95 there were 147,327 visits to the four emergency units in Hamilton. Based on reductions anticipated for deferrable visits, it is estimated that 52,890 visits could have been directed to alternate primary care services in the community (Table 21). This would leave approximately 94,437 emergent and urgent care visits to be appropriately seen by the hospital-based emergency services.

This adjusted volume of utilization (94,437 visits) can be projected forward using population projections. The number of emergent and urgent visits will increase by 9.4% to 103,359 by the year 2000, or by 17.3% to 110,782 by the year 2005.

	YEAR	VOLUME
Adjusted ER Visit Volumes	1994 - 95	94,437
Projected ER Visit Volume	2000	103,359
	2005	110,782

Given the physical facility assessment outcomes of all four emergency units, it is possible for three emergency units to see 34,000 - 37,000 emergent and urgent visits per year in a restructured primary care system. However, as noted earlier, the ER and in-patient services manifest clinical co-dependencies. Therefore there would need to be some restructuring of critical care roles where volumes and capacity may warrant these changes.

VIII. QUALITATIVE ISSUES

The critical juncture advisory groups also discussed a range of options to improve the level of emergency service. Greater access to and coordination with the primary care sector is required. Public education and modification of help seeking behaviour can be achieved by demand management including telephone triage and advice.

Planning on a regional basis is required to more effectively address emerging issues in EHS (e.g. DNR, disaster planning). This could be extended to areas such as improving access to the ER by streamlining bed management processes. Another perceived need is two-track systems and multi-disciplinary teams in the emergency room. A consortium of providers is required to develop and manage the telephone advice line and the newly coordinated emergency and primary care systems.

Finally, there is a requirement to develop a regional emergency services database for planning, patient tracking and clinical decision-making.

A summary of the strengths and weaknesses and priority areas for development are included in the Appendix.

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TABLE 1

EMERGENCY ROOM AND URGENT CARE UTILIZATION
1994 - 95 and Year-to-Date

	1994-95	Monthly Average	YTD (6 Months)	Monthly Average
McMaster	32,161	2,680	16,883 (Apr. - Sept.)	2,814
Chedoke UCC	16,867	1,405	8,628 (Apr. - Sept.)	1,438
St. Joseph's	43,753	3,646	22,878 (Apr. - Sept.)	3,813
Henderson	34,044	2,837	17,330 (Apr. - Sept.)	2,888
General	37,369	3,114	19,432 (Apr. - Sept.)	3,239
St. Joseph's UCC	36,307	3,025	19,715 (Apr. - Sept.)	3,286
Total	200,501	16,708	104,866 (Apr. - Sept.)	17,478

Source: Hamilton Hospitals

TABLE 2

EMERGENCY DEPARTMENT UTILIZATION
By Shift, 1994 - 95

	Henderson	McMaster	General	St. Joseph's	Total
0000 - 0800	5,733	4,678	6,770	7,773	24,954
0801 - 1600	14,228	13,796	15,518	17,666	61,208
1601 - 2400	13,964	13,228	15,085	18,314	60,591
Total	33,925	31,702	37,373	43,753	146,753

Source Hamilton Hospitals

TABLE 3

EMERGENCY VISITS, HAMILTON-WENTWORTH [1]
FIVE YEAR TRENDS

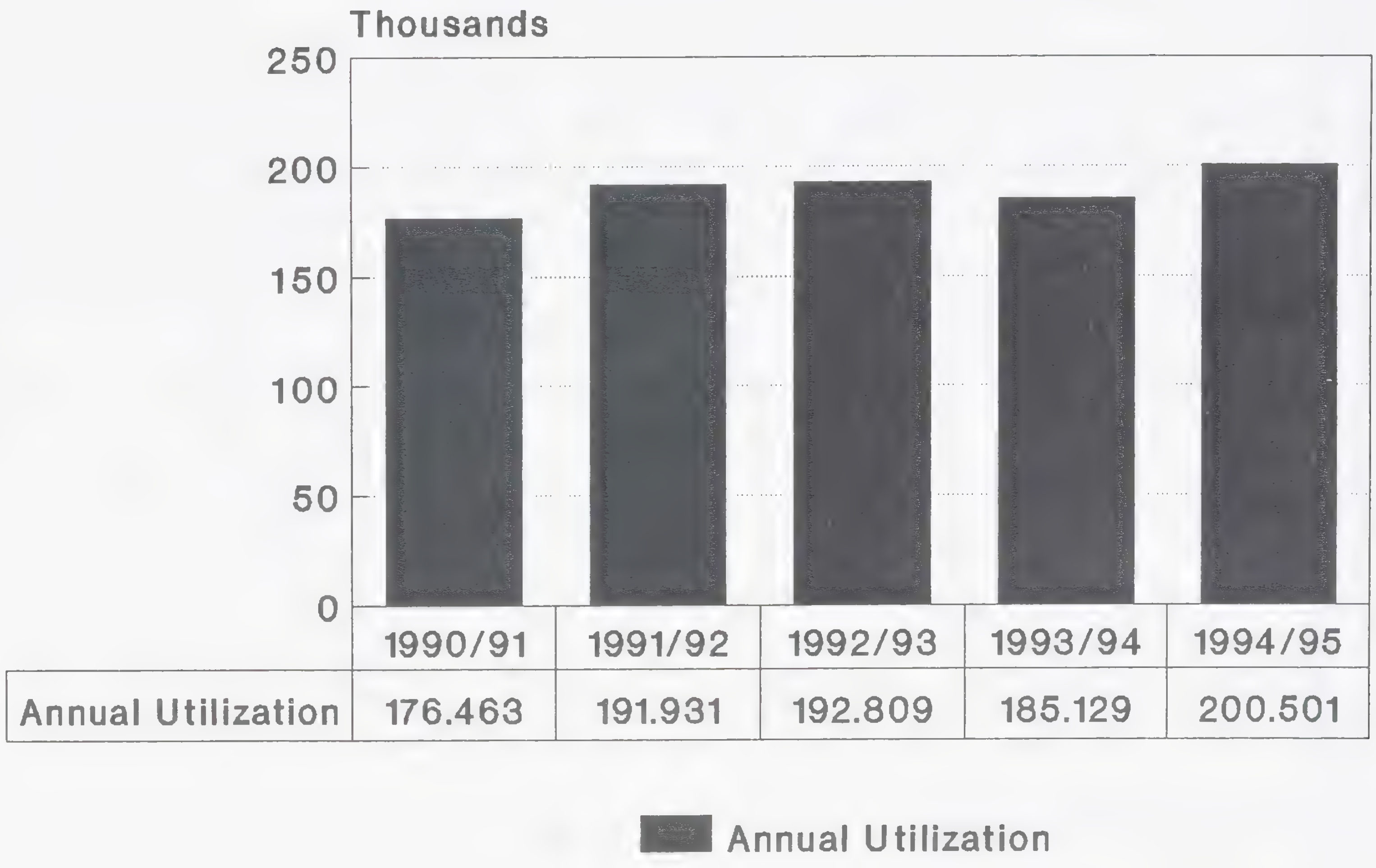
	1990/91	**1991/92**	**1992/93**	**1993/94**	**1994/95[2]**	**% CHANGE**
Hamilton Civics	71,692	67,266	63,226	61,889	71,413	-.3
Chedoke-McMaster[3]	61,937	60,597	55,194	49,292	49,028[3]	-20.8
St. Joseph's	42,834	43,194	45,477	42,004	43,753	+2.1
St. Joseph's UCC	n/a	20,874[4]	28,912	31,944	36,307	+25.6[5]
TOTAL	**176,463**	**191,931**	**192,809**	**185,129**	**200,501**	**+13.6**
Central West	1,029,830	985,801	920,675	894,085	N/A	-13.2
Ontario	5,774,336	5,725,721	5,508,299	5,404,209	N/A	-6.4

Source: [1] 1990/91 - 1993/94 Ministry QRT Data Base
[2] 1994/95 Hospital Data Estimates
[3] Includes Chedoke, UCC
[4] Ten Months only
[5] Since 1992/93

FIGURE 1

Emergency UCC Utilization

Five Year Trends

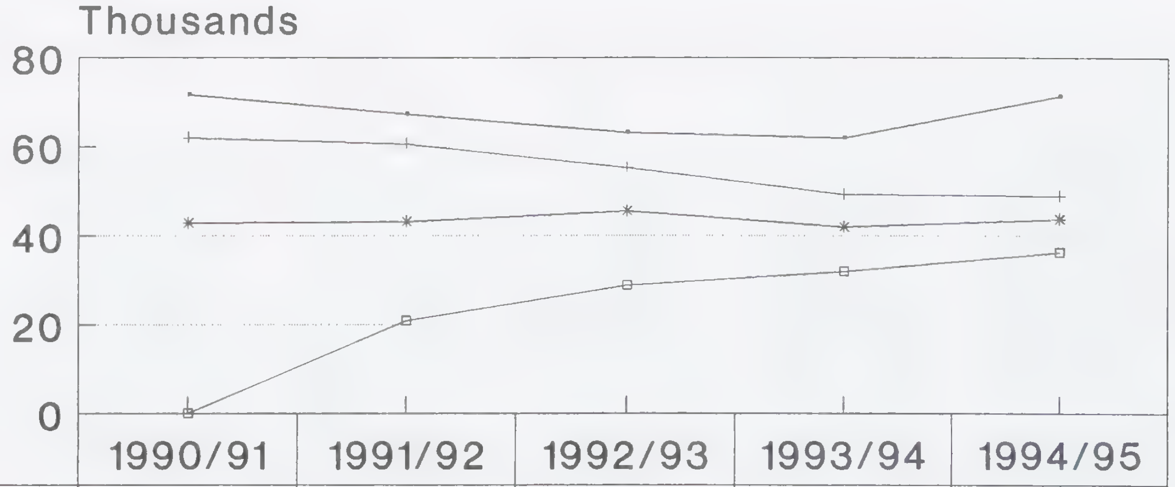


Source: QRT Data Set and Hospitals

FIGURE 2

Emergency and UCC Visits

Five Year Trends, 1990/91-1994/95

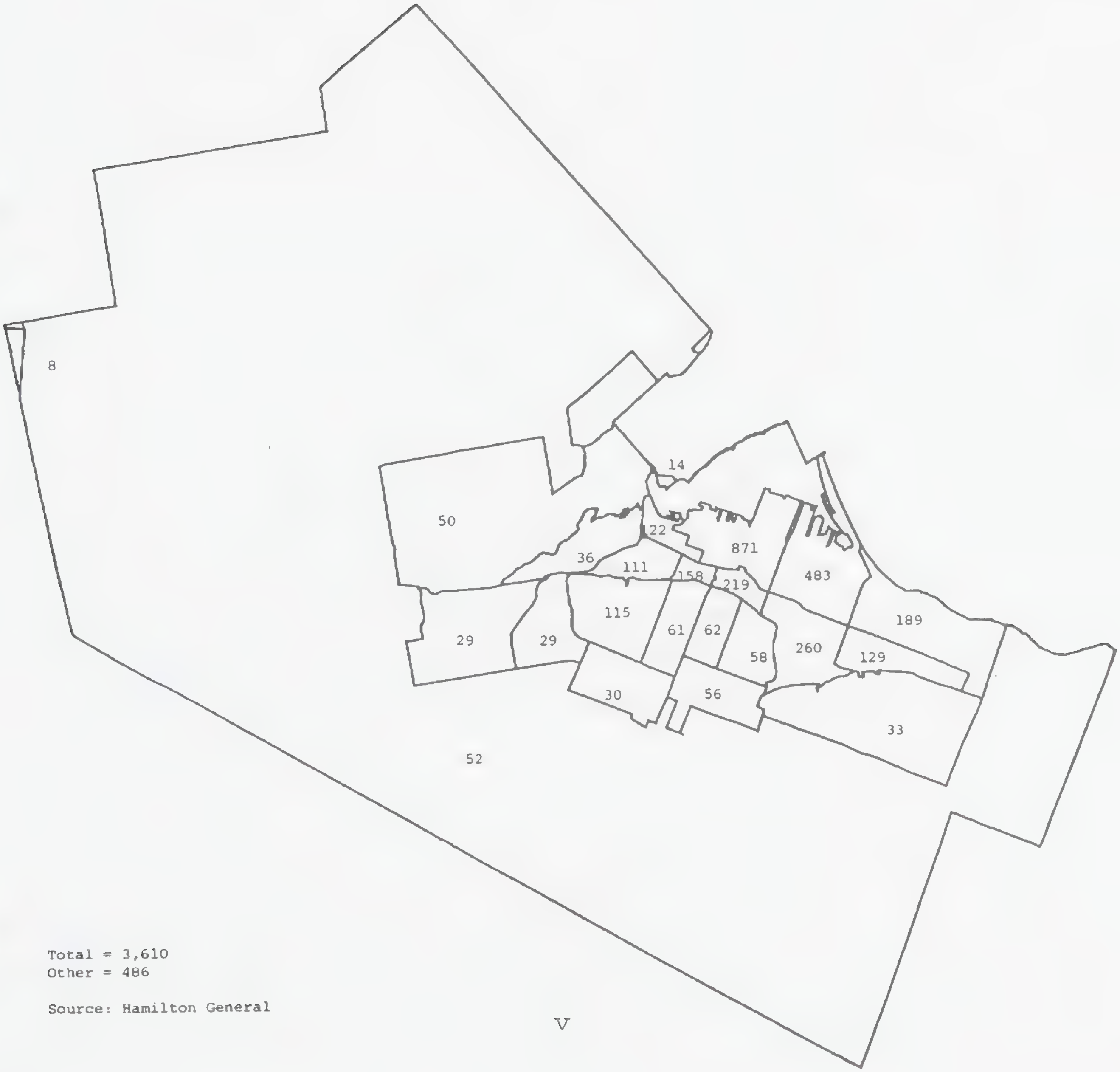


	1990/91	1991/92	1992/93	1993/94	1994/95
Hamilton Civics	71.692	67.266	63.226	61.889	71.413
Chedoke-McMaster	61.937	60.597	55.194	49.292	49.028
St. Joseph's	42.834	43.194	45.477	42.004	43.753
St. Joseph's UCC	0	20.874	28.912	31.944	36.307

Source: QRT data base

MAP 1a

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton General Hospital - 1995
Two Month Data

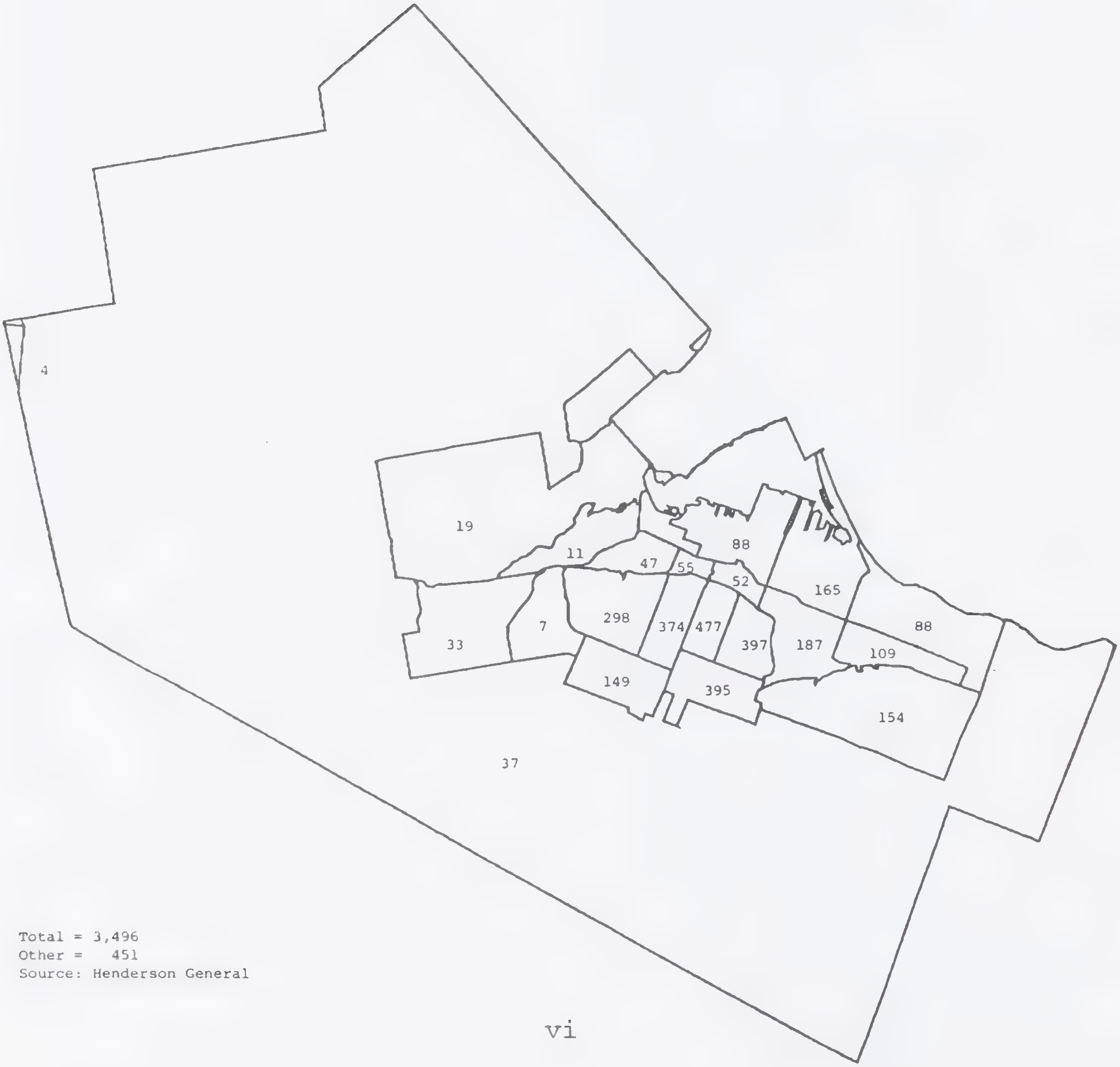


Total = 3,610
Other = 486

Source: Hamilton General

MAP 2a

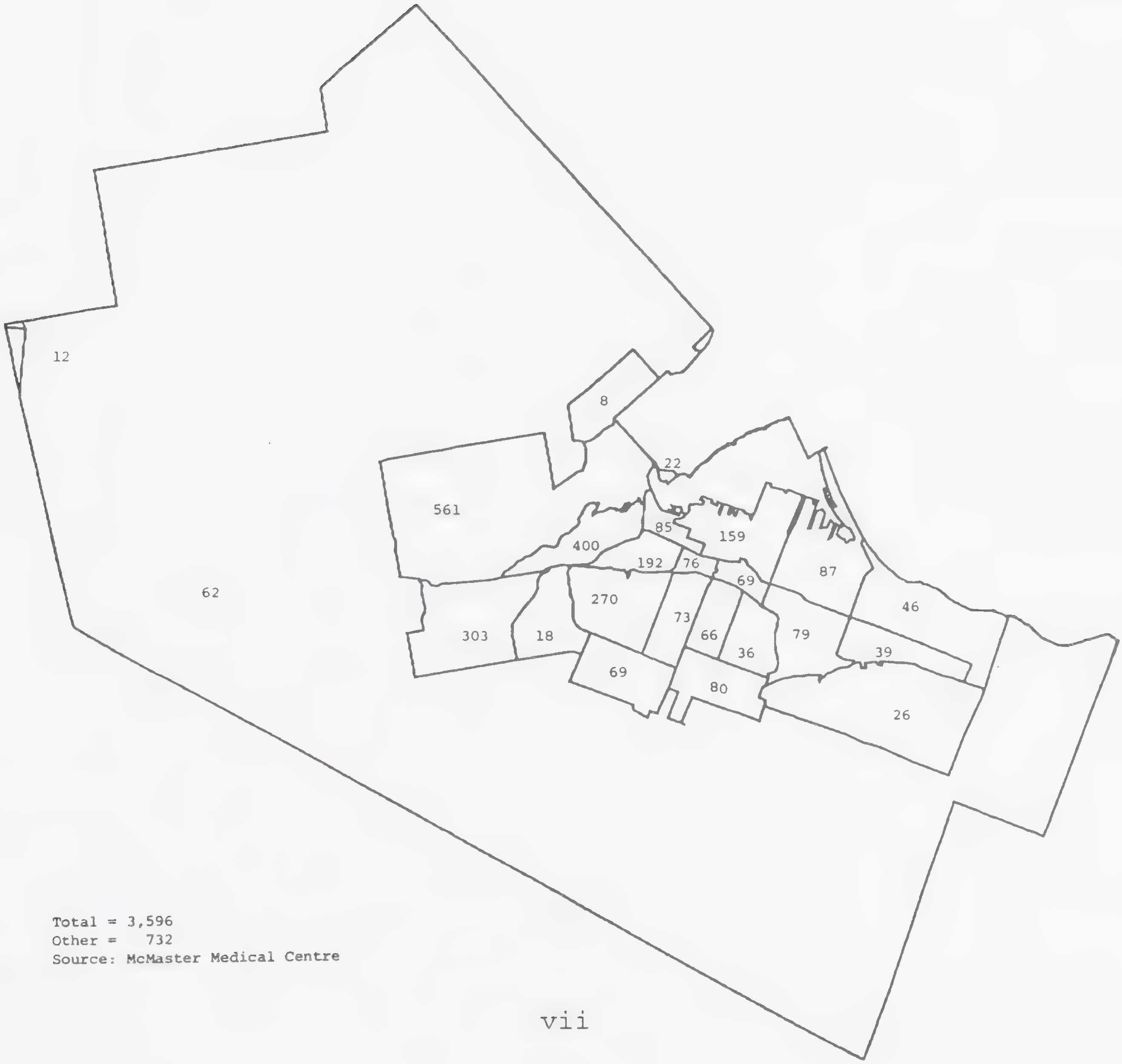
FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Henderson General Hospital - 1995
Two Month Data



Total = 3,496
Other = 451
Source: Henderson General

MAP 3a

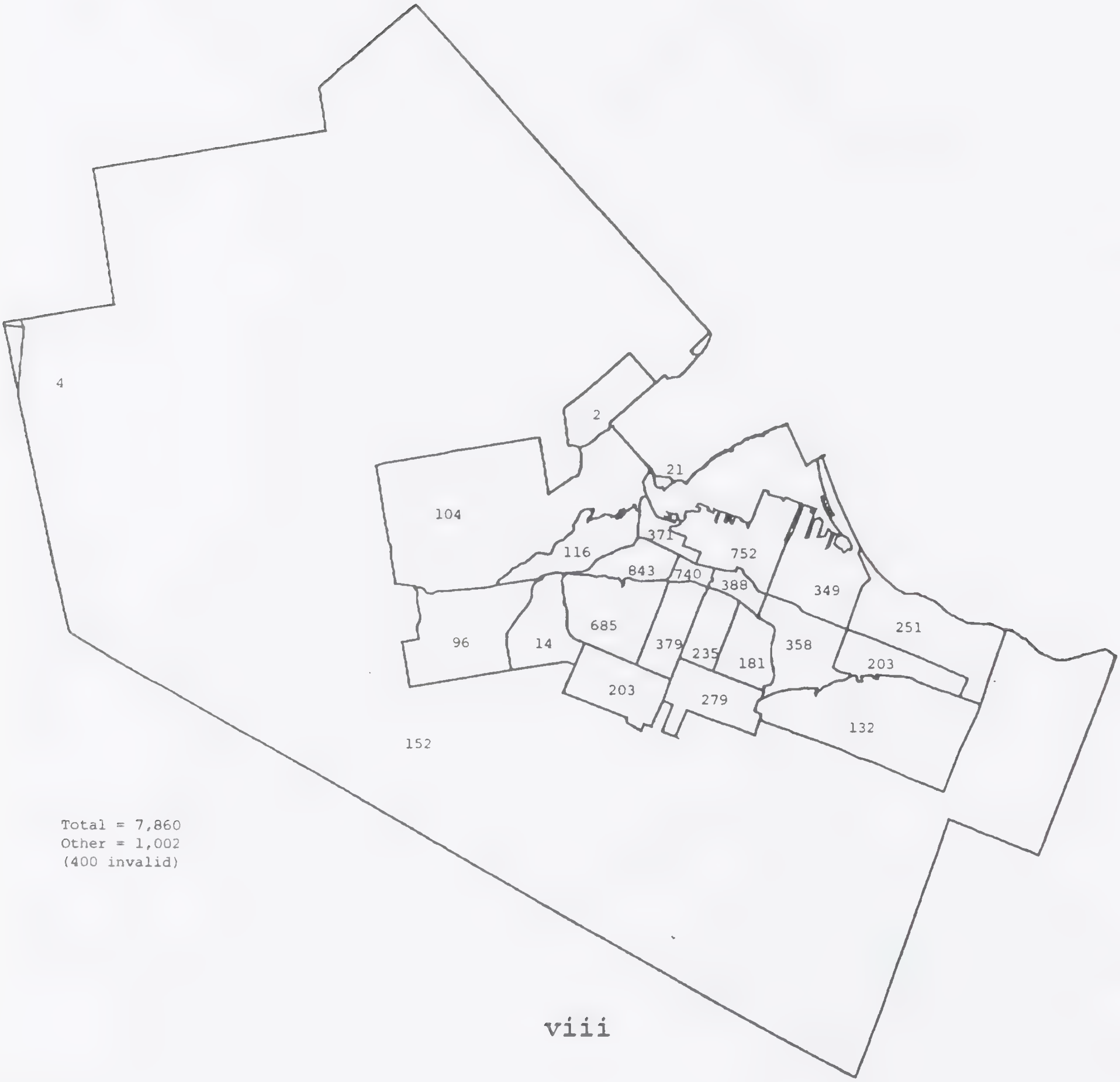
FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to McMaster University Medical Centre - 1995 Two Month Data



Total = 3,596
Other = 732
Source: McMaster Medical Centre

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton St. Joseph's Hospital - 1995
Two Month Data

MAP 4a

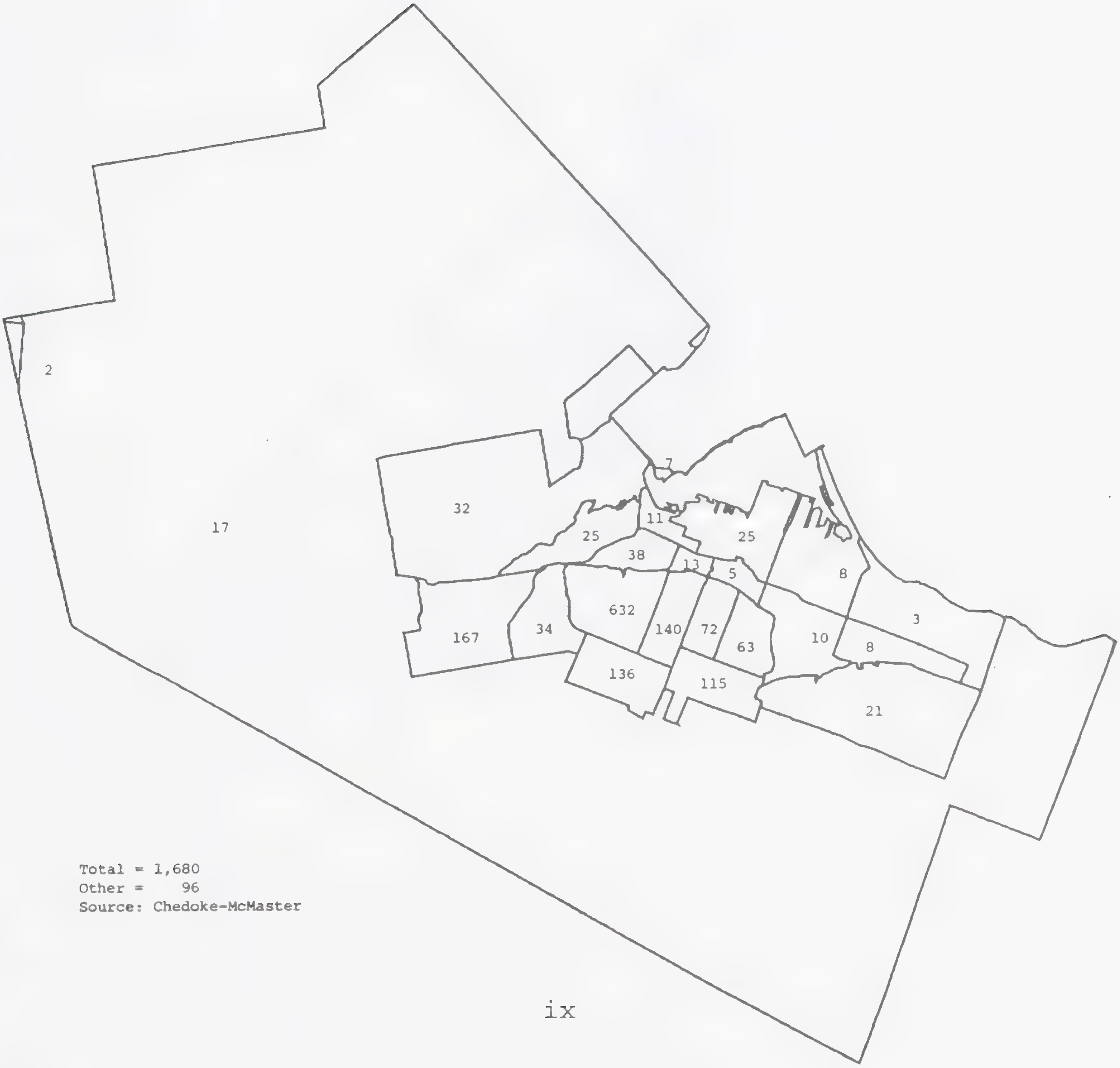


Total = 7,860
Other = 1,002
(400 invalid)

MAP 5a

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton Chedoke UCC - 1995

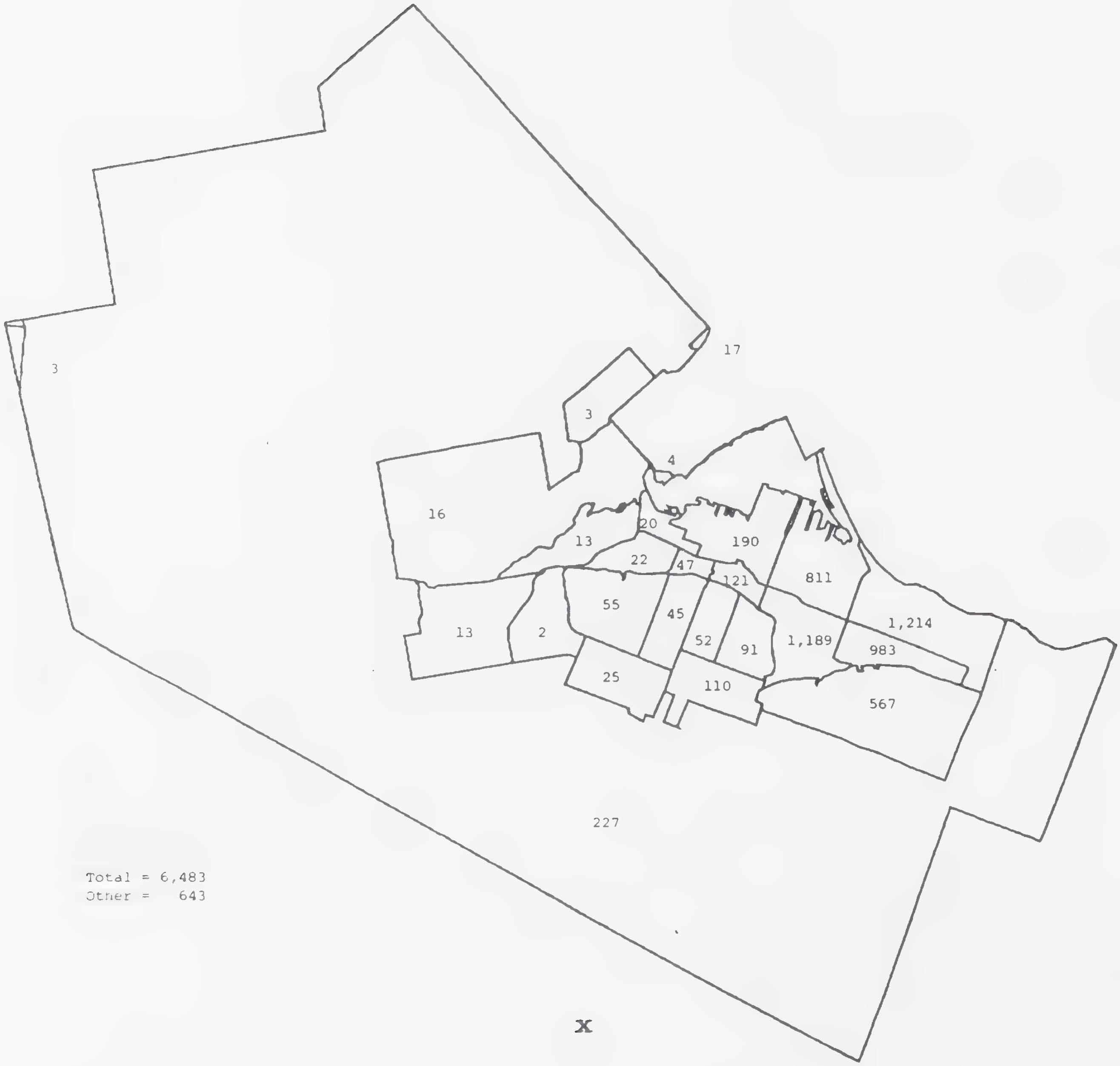
Two Month Data



Total = 1,680
Other = 96
Source: Chedoke-McMaster

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton St. Joseph's Hospital UCC - 1995 Two Month Data

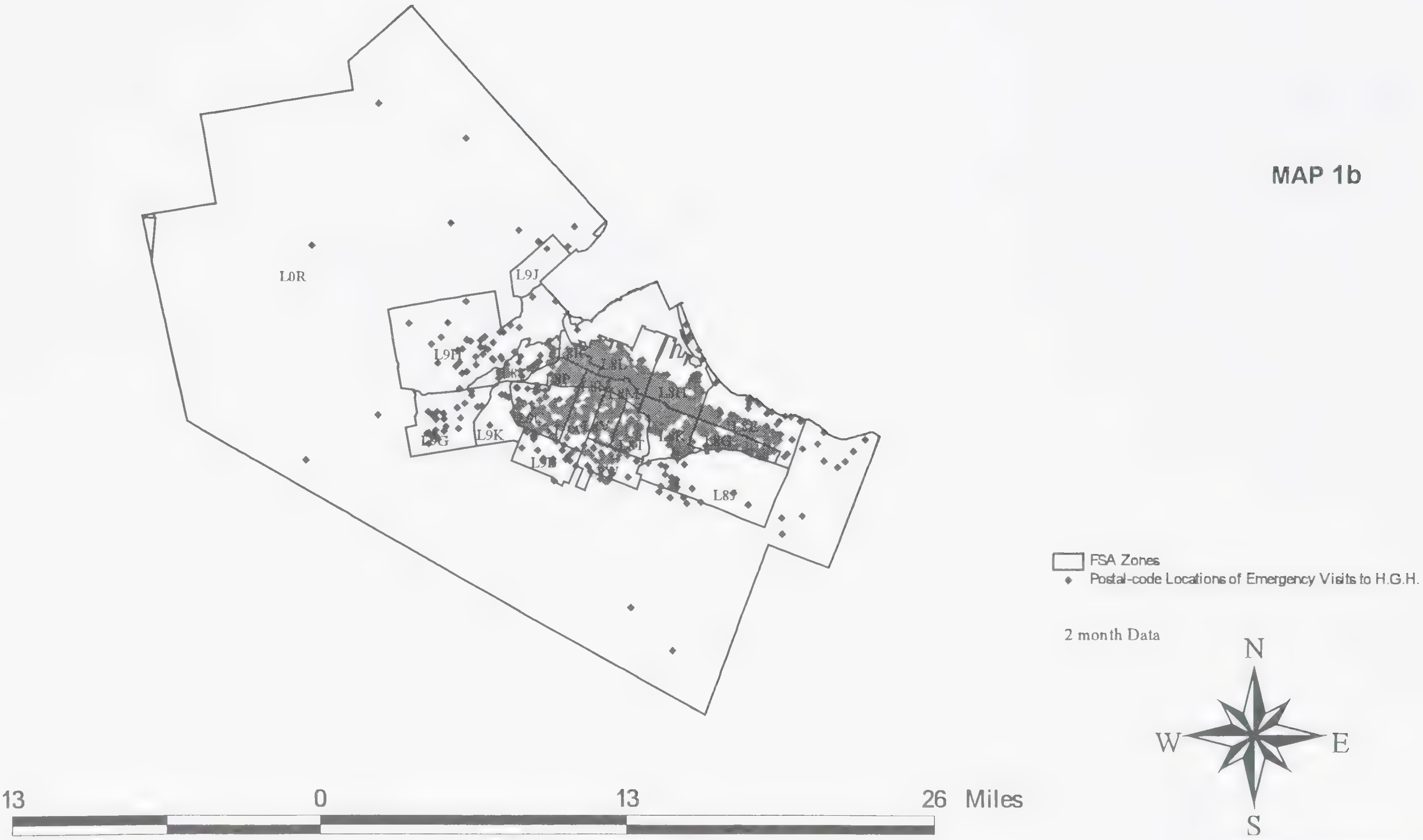
MAP 6a



Total = 6,483
Other = 643

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton General Hospital

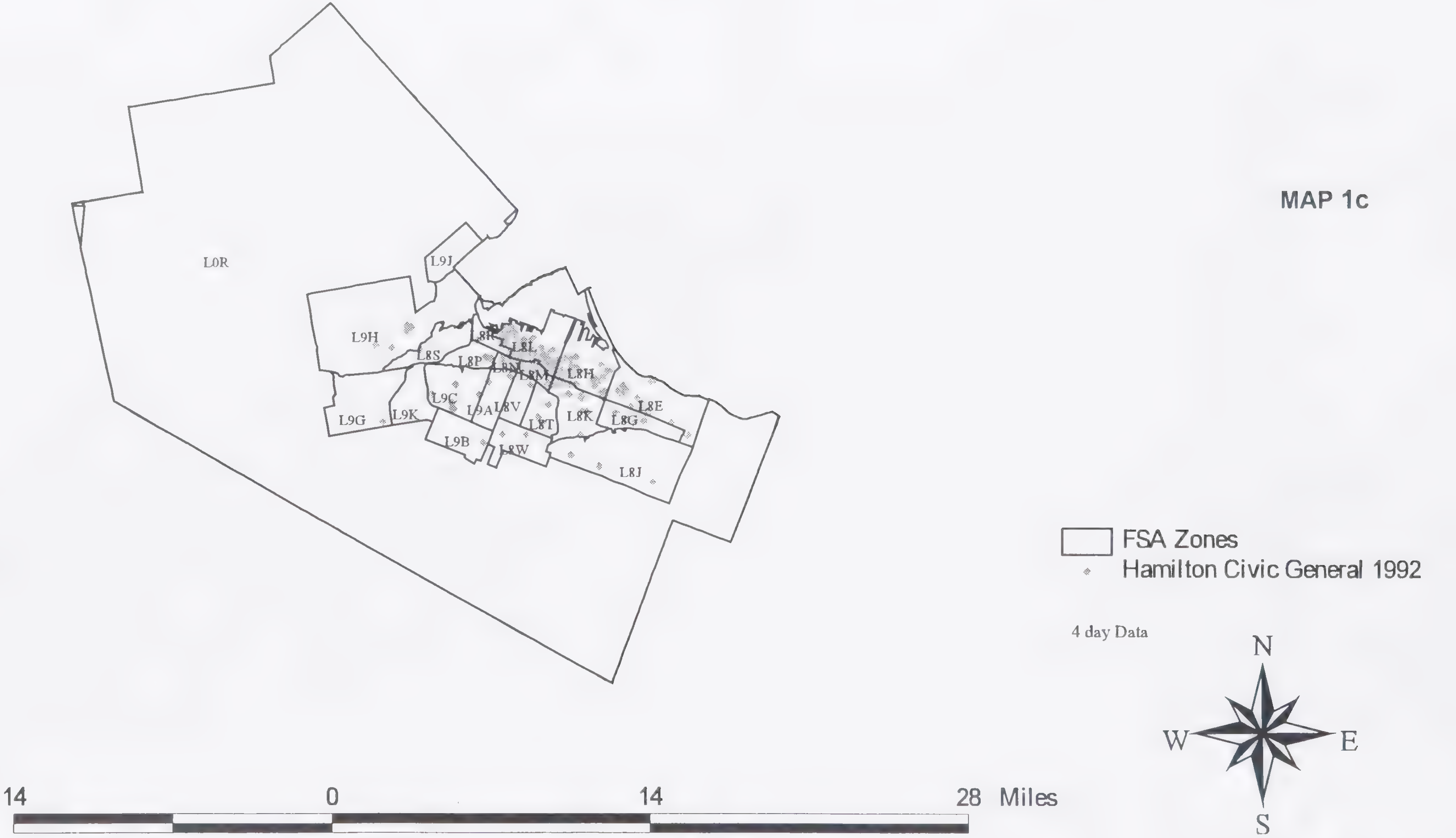
MAP 1b



Prepared by: Chris Sonsmann
McMaster Health Intelligence Group
Data Source: District Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton Civic General Hospital - 1992

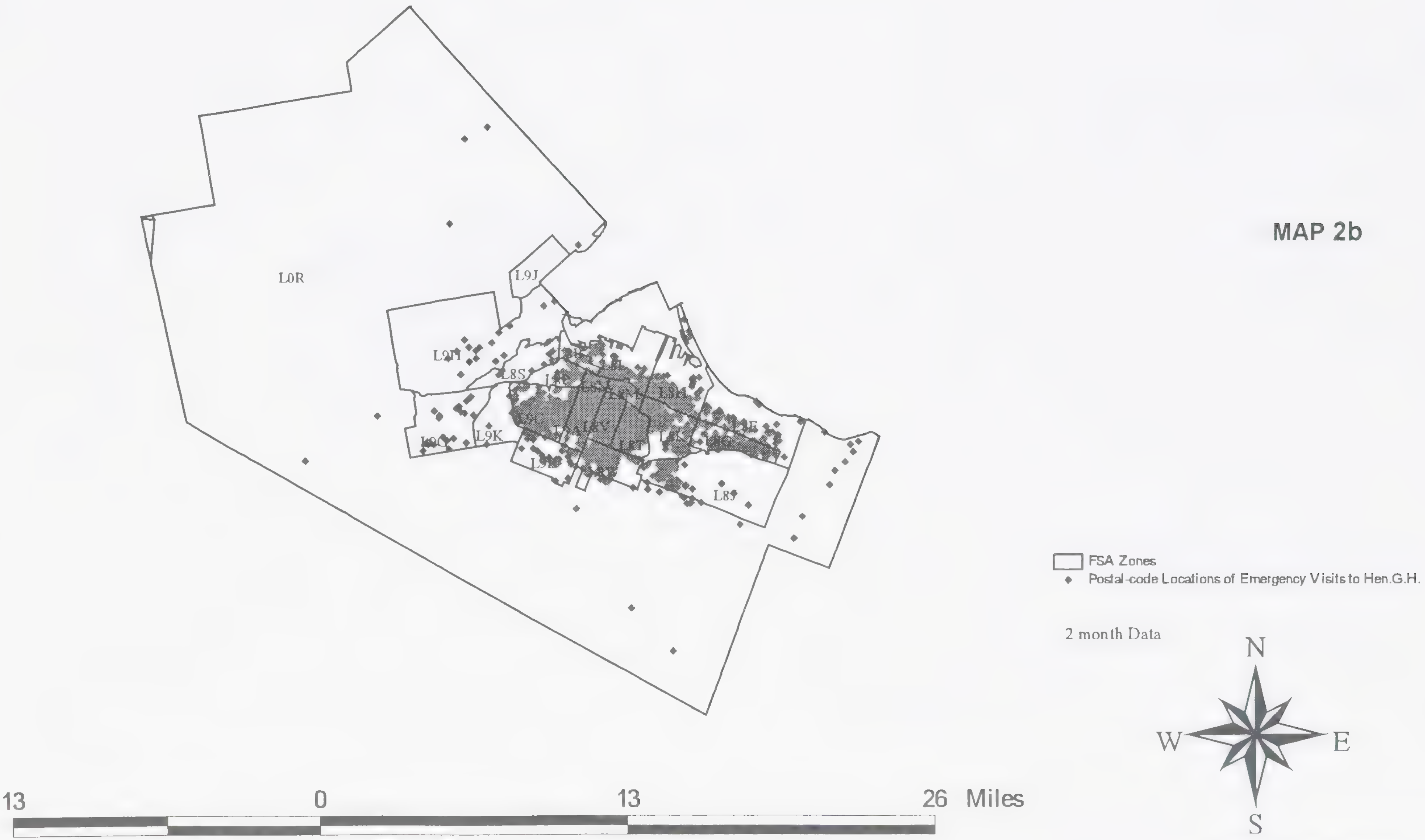
MAP 1c



Prepared by: Chris Sonsmann
McMaster Hea elligence Group
Data Source: Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Henderson General Hospital

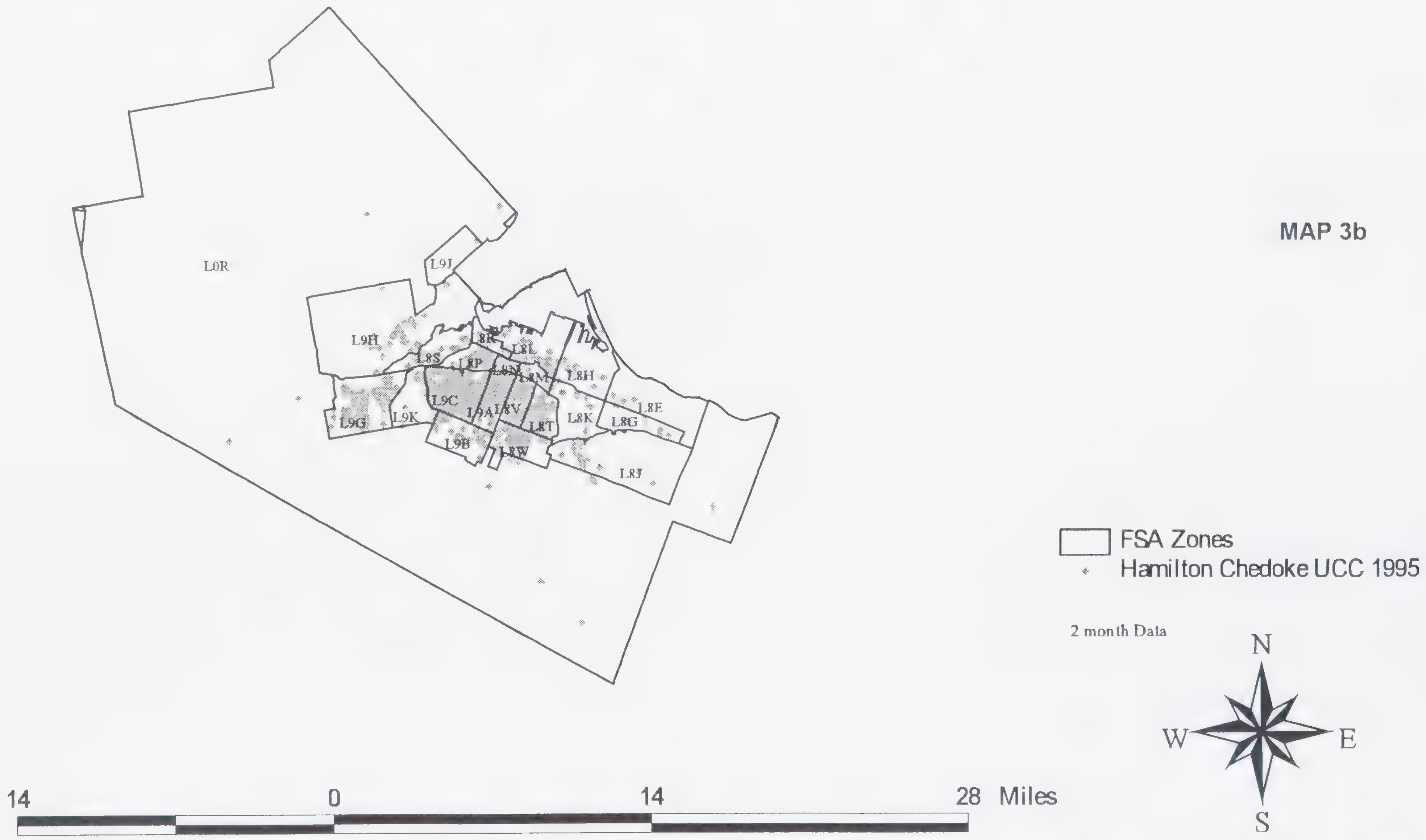
MAP 2b



Prepared by: Chris Sonsmann
McMaster Health Intelligence Group
Data Source: District Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton Chedoke UCC - 1995

MAP 3b

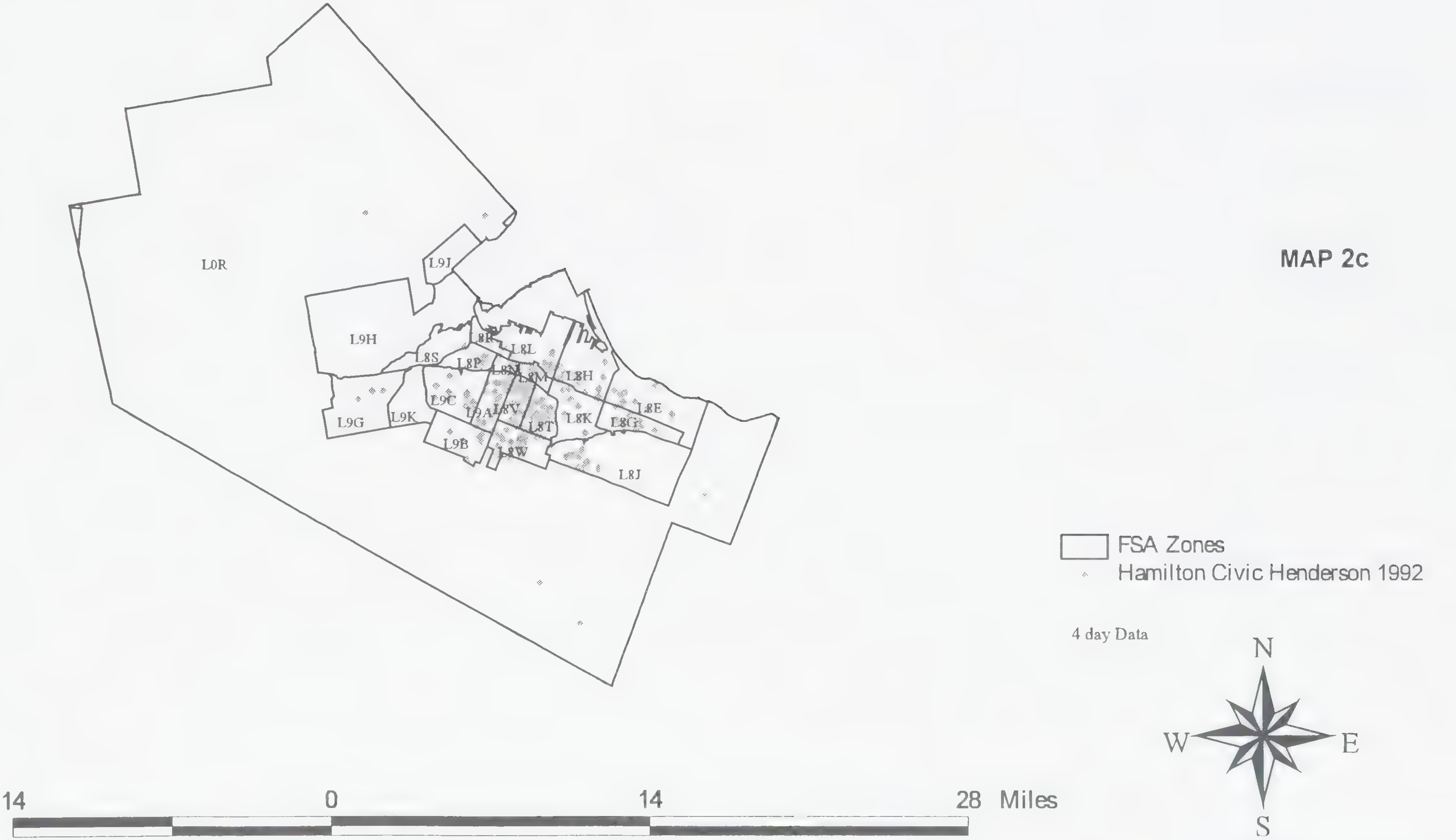


2 month Data

Prepared by: Chris Sonsmann
McMaster Hea’ lligence Group
Data Source: I Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton Civic Henderson Hospital - 1992

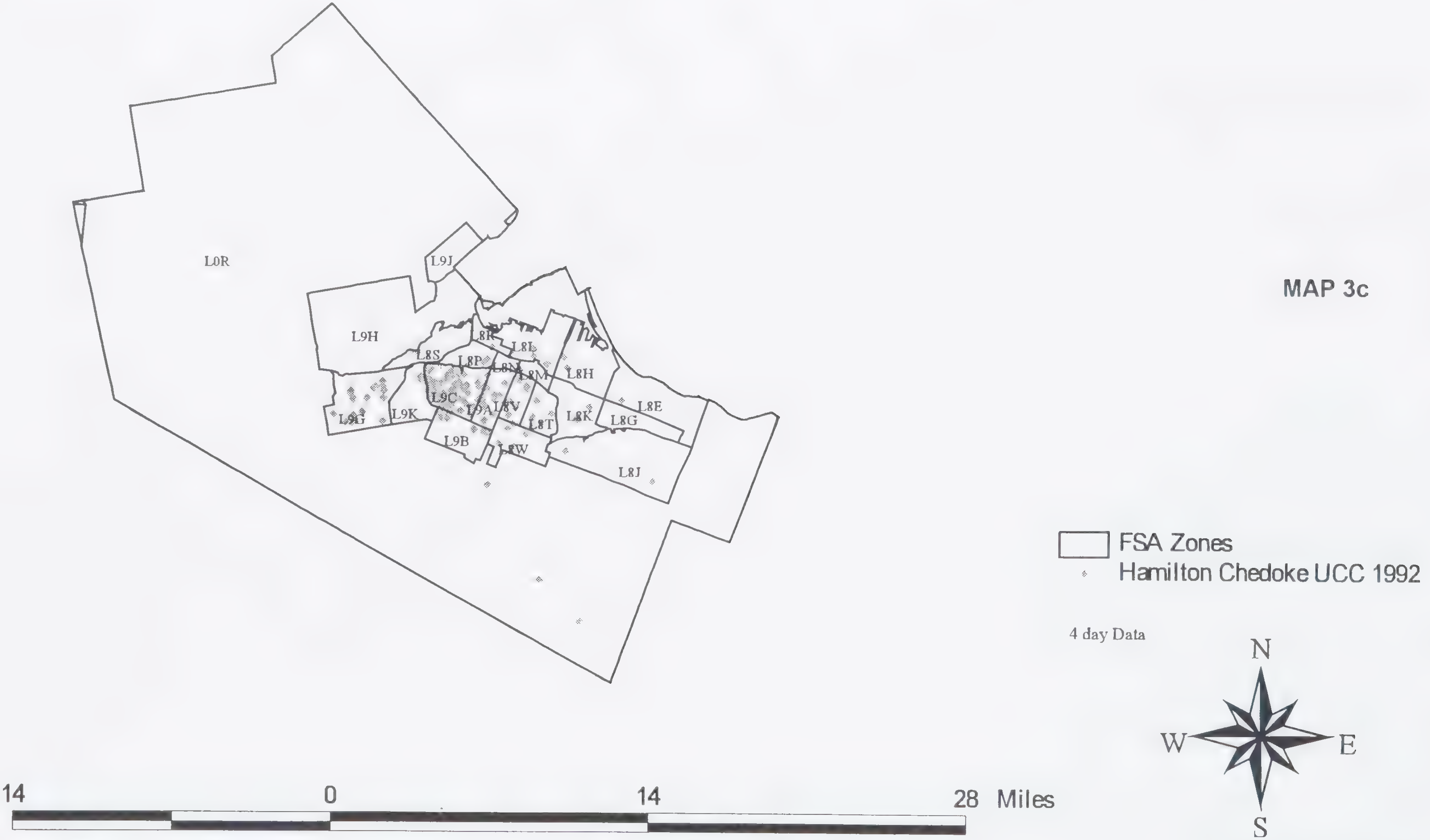
MAP 2c



Prepared by: Chris Sonsmann
McMaster Health Intelligence Group
Data Source: District Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton Chedoke UCC - 1992

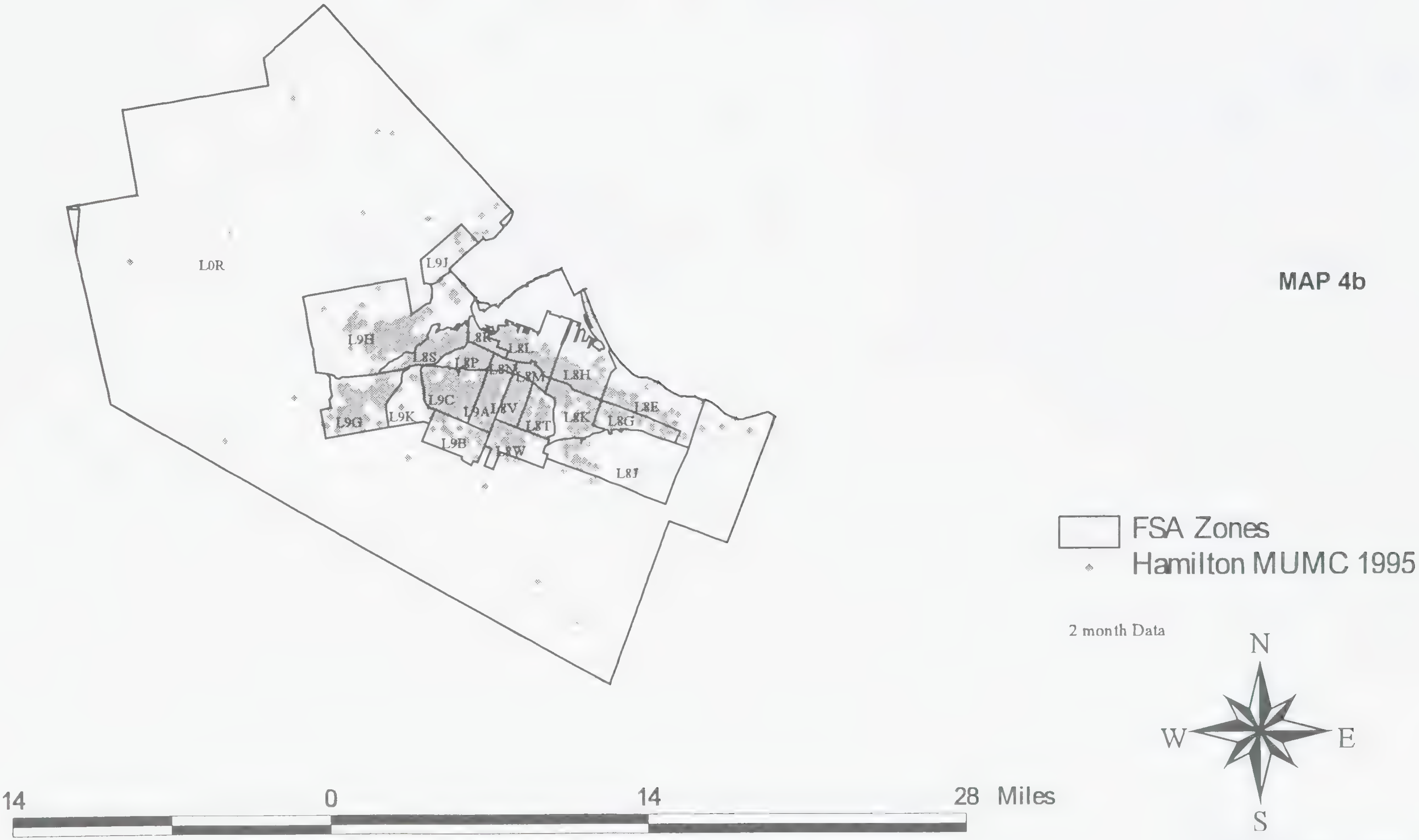
MAP 3c



Prepared by: Chris Sonsmann
McMaster Hea elligence Group
Data Source: I Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to McMaster University Medical Centre - 1995

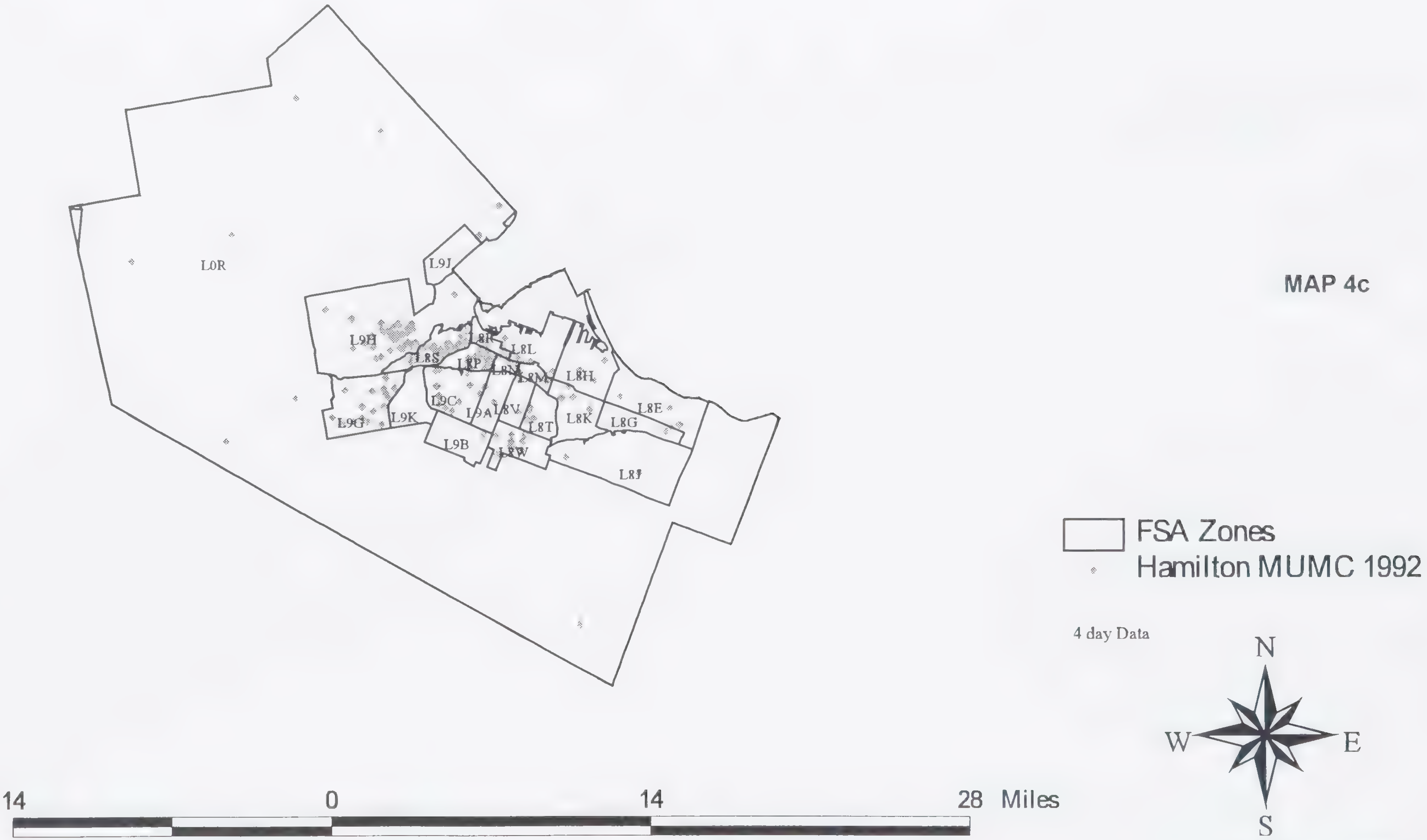
MAP 4b



Prepared by: Chris Sonsmann
McMaster Health Intelligence Group
Data Source: District Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to McMaster University Medical Centre - 1992

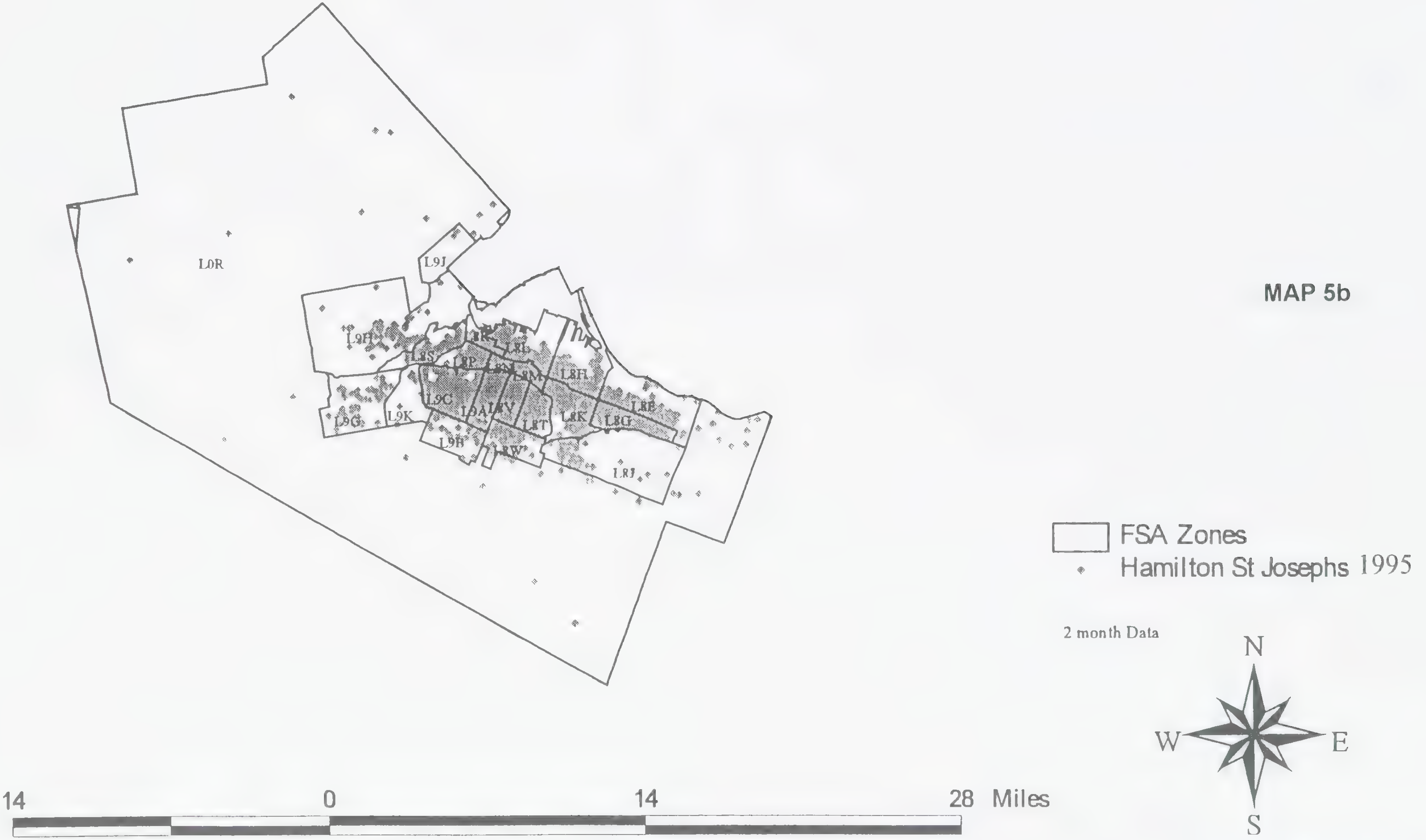
MAP 4c



Prepared by: Chris Sonsmann
McMaster He[illegible]elligence Group
Data Source: [illegible] Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton St. Josephs Hospital - 1995

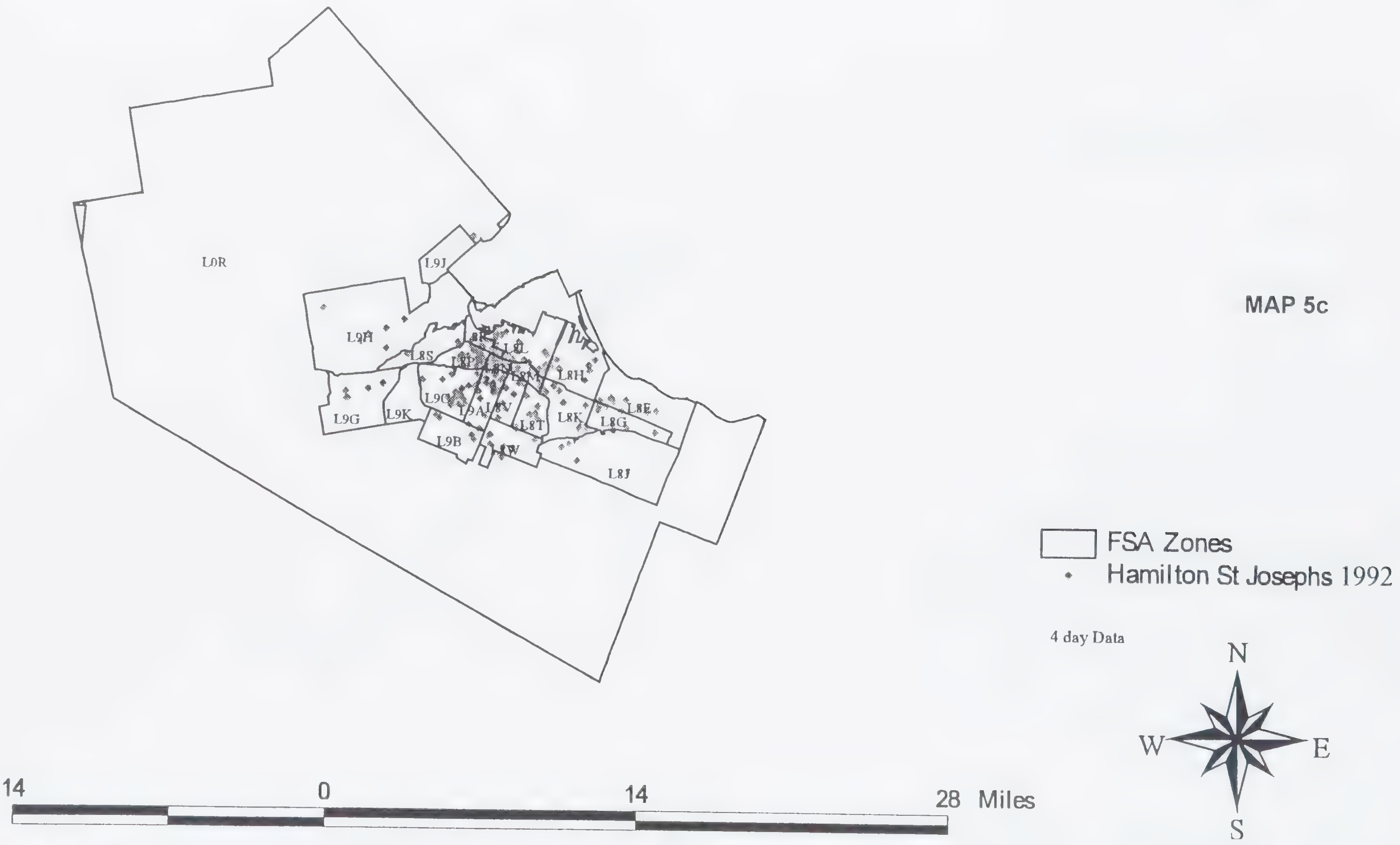
MAP 5b



Prepared by: Chris Sonsmann
McMaster Health Intelligence Group
Data Source: District Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton St. Josephs Hospital - 1992

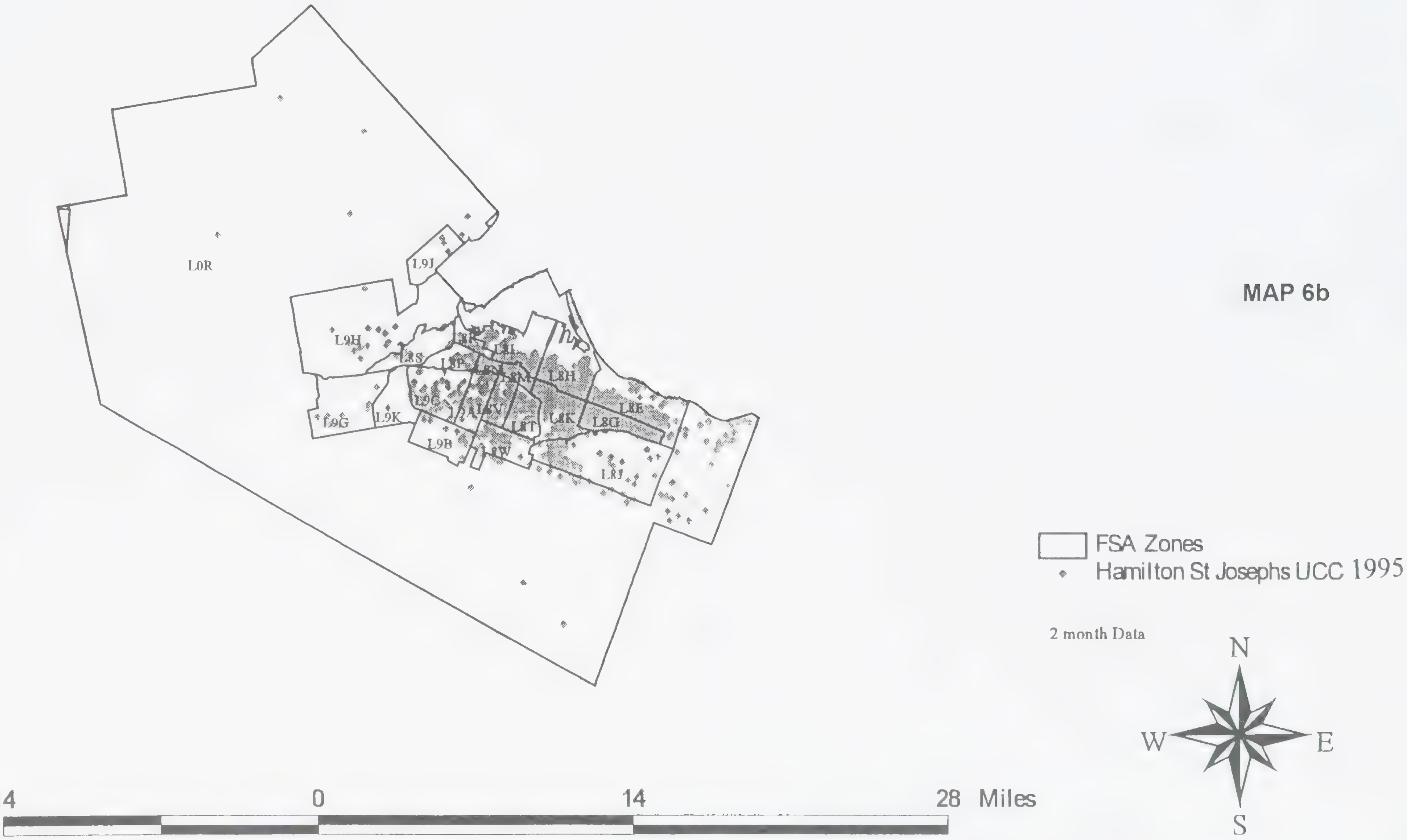
MAP 5c



Prepared by: Chris Sonsmann
McMaster H[illegible] Intelligence Group
Data Source [illegible]ct Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton St. Josephs UCC - 1995

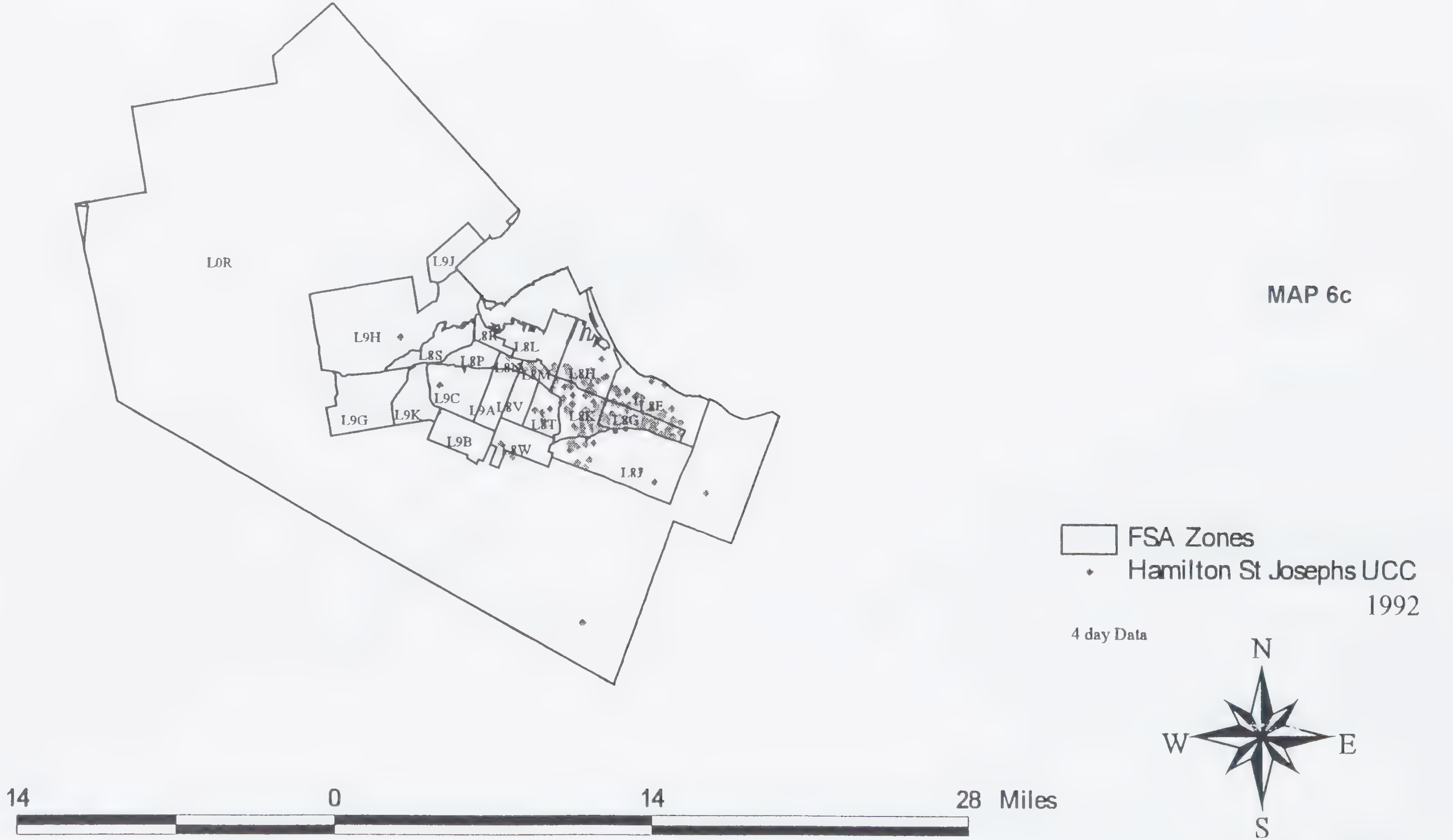
MAP 6b



Prepared by: Chris Sonsmann
McMaster Health Intelligence Group
Data Source: District Health Council

FSA Zones of Hamilton-Wentworth County and Postal Code Locations of Emergency Visits to Hamilton St. Josephs UCC - 1992

MAP 6c



Prepared by: Chris Sonsmann
McMaster H[illegible] Intelligence Group
Data Source [illegible] ct Health Council

TABLE 4

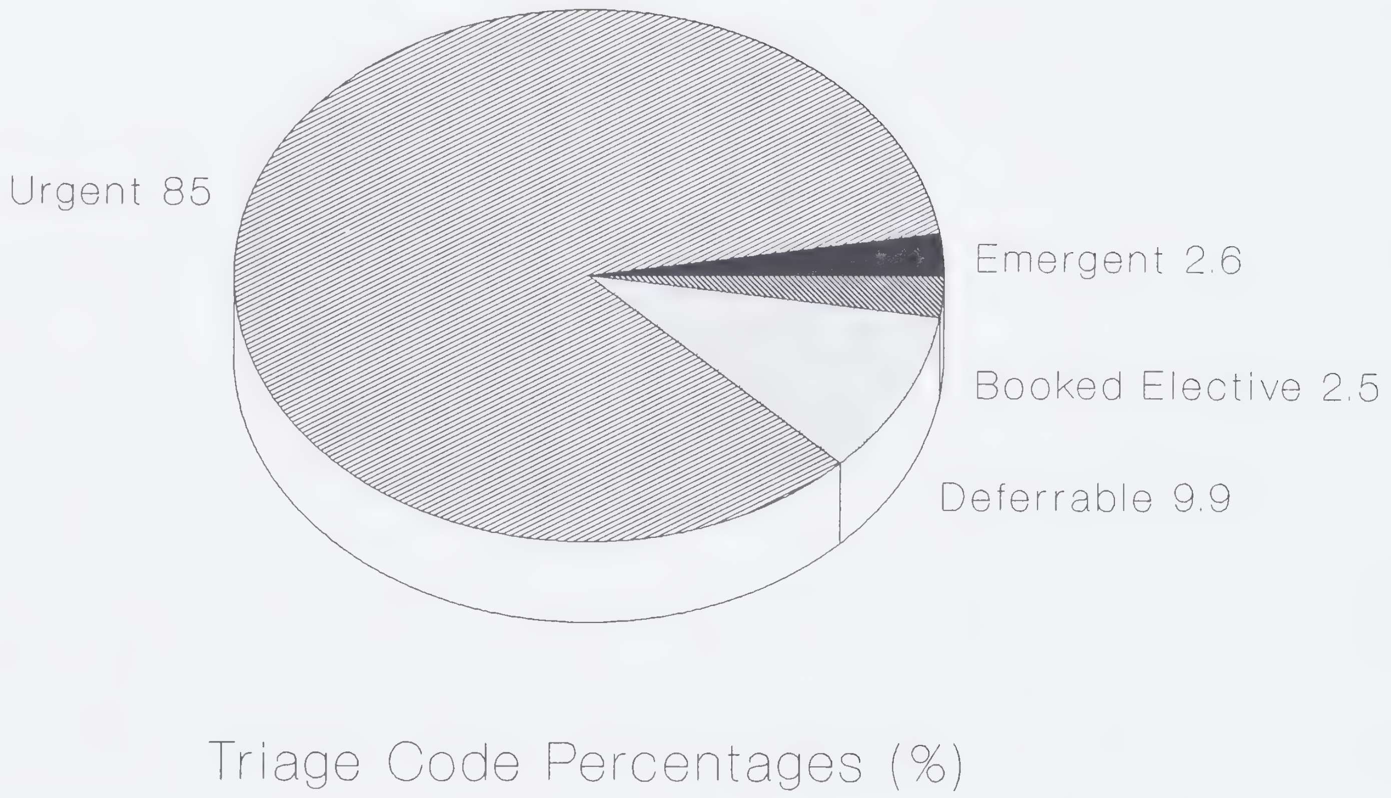
NURSING TRIAGE CODES, 1994-95

	Emergent	Urgent	Deferrable	Elective
	%	%	%	%
McMaster	1.5	76.8	17.4	4.3
Chedoke UCC	.5	76.1	23.3	.1
St. Joseph's[2]	.1	89.0	10.0	--
Henderson	4.7	87.9	5.2	2.2
Hamilton General	3.1	86.4	7.4	3.0
St. Joseph's UCC[1]	.1	42.3	56.4	--
TOTAL[3]	2.6	85.0	9.9	2.5

[1] 8 month data only
[2] 8 month data only
[3] emergency units only
Source: Hamilton Hospitals

FIGURE 3

1994-95 Nursing Triage Codes Emergency Department Visits



Source:Hamilton Hospitals

TABLE 5

COMPARISON OF EMERGENCY UNIT UTILIZATION ACROSS THREE ONTARIO STUDIES

Location	Ottawa [1]	Niagara [2]	Hamilton [3]
	%	%	%
Has Family Doctor	85	94.7	96.9
Physician Ratings:			
• Emergent [4]	5	9.8	11.3
• Urgent [5]	42	48.6	52.8
• Deferrable [6]	52	41.6	35.8
Could have been seen elsewhere / Doctor's office if available[7]	64	59.6	58.0

[1] Ottawa-Carleton Regional District Health Council. Assessment of the Utilization Patterns and Appropriateness of Use of the Emergency Departments in the Six Acute Care Hospitals in the Regional Municipality of Ottawa - Carleton, 1987

[2] Niagara District Health Council. Health Action Plan for the '90s. Review of Hospital Emergency Services in the Niagara Region, 1992

[3] Hamilton-Wentworth District Health Council. Emergency Services Review, 1992.

4 Emergent - requires immediate medical attention, life or limb threatened
5 Urgent - requires treatment within 1 hour - not more than 24 hour delay
6 Deferrable - services can be provided in another setting. Recovery not dependant on treatment within 24 hours
7 Ottawa physicians (40%) felt no alternative for patient was available at time of visit

TABLE 6

PERCENT OF EMERGENCY VISITS ADMITTED TO HOSPITAL 1994-95

	TOTAL ER VISITS	TOTAL # ADMITTED	% ADMITTED
St. Joseph's	43,753	7,597	17.4
Henderson	34,044	5,182	15.2
General Division	37,369	5,509	14.7
McMaster	32,161	5,393	16.8
TOTALS	147,327	23,681	16.1

TABLE 7

HOSPITALS ADMISSIONS THROUGH THE EMERGENCY DEPARTMENT 1994-95

HOSPITAL	TOTAL 1994-95 ADMISSIONS	ADMITS FROM EMERGENCY DEPT	% OF TOTAL
St. Joseph's	23,279	7,597	32.6%
Henderson	13,993	5,182	37.0%
General	12,458	5,509	44.2%
Ched-McM	15,597	5,393	34.6%
TOTALS	65,327	23,681	36.2%

TABLE 8

LONDON - HAMILTON COMPARISON EMERGENCY UNIT UTILIZATION

	ER Visits 1993/94	Admits	ER Admits	% ER Admits	% Visits Admitted
Hamilton Civics	61,889	26,992	10,472	38.8	16.9
Chedoke-McMaster	49,292	14,905	5,002	33.6	10.1
St. Joseph's	42,004	24,213	7,898	32.6	18.8
HAMILTON TOTALS	**153,185**	**76,110**	**23,372**	**30.7**	**15.3**
London Hospitals (Total)	41,159	22,963	5,467	23.8	13.3
	24,572	11,561	3,472	30.0	14.1
	74,240	29,895	8,400	28.1	11.3
LONDON TOTALS	**139,971**	**64,419**	**17,339**	**26.9**	**12.4**

Regional Assessment Population		**Emergency Visits Rate**	
Hamilton Population, 1994	459,656	333 / 1,000	(411 / 1,000)[1]
London Population, 1994	330,099	424 / 1,000	

[1] Includes St. Joseph's Urgent Care

Ontario Rate:	1991/92 568/1,000 (below national average)
Canada Rate:	1988/89 670/1,000
North West Ontario:	1991/92 1,069/1,000

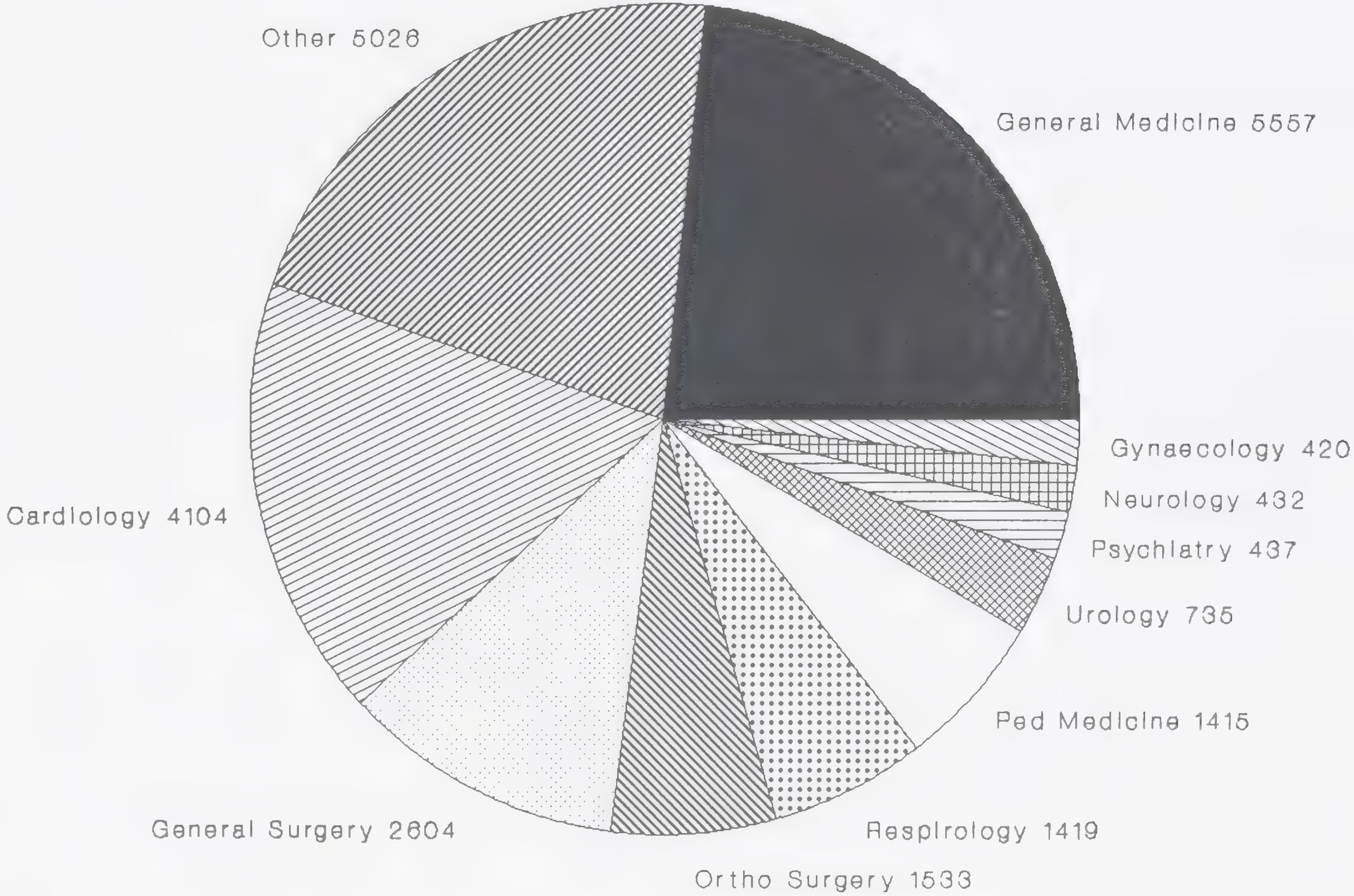
TABLE 8b

Total Admissions and Admissions Through Emergency Department
By Main Patient Service, 1994-95

Main Patient Service	All Admission 1994-95	Admission From Emerg.	% Admitted From Emerg.
Trauma	228	215	94.3
Ped. Respirology	329	279	84.8
Ped. Psychiatry	21	17	81.0
Respirology	1,800	1,419	78.8
General Medicine	7,085	5,557	78.4
Gastro-ENT	1,690	1,211	71.7
Dermatology	99	70	70.7
Neurology	646	432	66.9
Ped. Gastro	158	102	64.6
Cardiology	6,626	4,104	61.9
Ped. Medicine	2,361	1,415	59.9
Ped. Gynaecology	14	8	57.1
Nephrology	521	269	51.6
Paediatric Surgery	677	344	50.8
Ped. Thoracic Surgery	2	1	50.0
OBS Abort.	292	131	44.9
General Surgery	6,286	2,604	41.4
Plastic Surgery	965	357	37.0
Psychiatry	1,189	437	36.8
Ped. Orthopaedic Surgery	625	219	35.0
OTOLAR	435	149	34.3
Orthopaedic Surgery	4,835	1,533	31.7
Ped. Nephrology	16	5	31.3
Urology	2,491	735	29.5
Ped. Haematology	205	58	28.3
Neurosurgery	1,179	328	27.8
OBS Post	139	37	26.6
Transplant Surgery	151	40	26.5
Haematology	911	238	26.1
Ped. Cardiology	39	10	25.6
Ped. Neurosurgery	78	20	25.6
Alcohol Abuse	50	12	24.0
Ped. Neurology	17	4	23.5
Ped. Plastic Surgery	116	26	22.4
Unknown	1,720	378	22.0
PED. Opthamology	16	3	18.8
Oral Surgery	147	25	17.0
Gynaecology	2,721	420	15.4
Ped. Urology	192	29	15.1
Ped. Oral Surgery	16	2	12.5
Thoracic Surgery	496	52	10.5
Ped. Otolar	241	25	10.4
OBS ANTEP	883	86	9.7
Cardiovascular Surgery	1,378	125	9.1
Opthamology	439	34	7.7
Rheumatology	270	9	3.3
Dental	52	1	1.9
OBS Delivery	7,373	99	1.3
Neonatology	1,094	6	0.5
Physical Medicine/Rehab	654	1	0.2
Newborn	6,840	1	0.0
Ped. Dental	2	0	0.0
Geriatrics	179	0	0.0
Radiology	1	0	0.0
Family Practice	2	0	0.0
	66,992	23,682	35.4

FIGURE 5

Admissions Through Emergency By Main Patient Service, 1994-95



N=23,682

TABLE 9

EMERGENCY ADMISSIONS, 1994/95

by Main Patient Service by Site

	General	Henderson	McMaster	St. Joseph's	TOTAL
Pediatric Urology				29	29
				243	243
				1	1
				21	21
General Medicine	2,009	497	1,194	1,857	5,557
Cardiology	1,072	1,097	673	1,262	4,104
Dermatology		70			70
Gastroenterology		861	251	99	1,211
Nephrology			1	268	269
Neurology	121	302		9	432
Respirology		747	360	312	1,419
Rheumatology				9	9
Pediatric Medicine		2	651	762	1,415
Pediatric Cardiology			10		10
Pediatric Gastroenterology			102		102
Pediatric Nephrology			5		5
Pediatric Neurology			4		4
Pediatric Respirology			279		279
General Surgery	708	431	652	813	2,604
Cardiovascular Surgery	42		63	20	125
Neurosurgery	317		3	8	328
Oral Surgery	19		1	5	25
Ortho Surgery	561	368	272	332	1,533
Plastic Surgery	214	6	16	121	357
Thoracic Surgery	1		8	43	52
Transplant Surgery				40	40
Trauma	215				215
Urology	111	242	74	308	735
Pediatric Surgery			249	95	344
Pediatric Neurosurgery			20		20
Pediatric Oral Surgery				2	2
Pediatric Ortho Surgery			113	106	219
Pediatric Plastic Surgery			9	17	26
				1	1
			24	5	29
OBS Delivery		13	19	67	99
OBS Antep		35	42	9	86
OBS Abort		86	45		131
				1	1
Gynaecology		133	72	215	420
Pediatric Gynaecology			5	3	8
OBS Post		14	23		37
Otolaryngology	31	77	12	29	149
Pediatric Otolaryngology			10	15	25
Ophthalmology	5	2	6	21	34
Pediatric Opthamology			2	1	3
Psychiatry	1	32	35	369	437
Pediatric Psychiatry				17	17
Haematology		164	24	50	238
Pediatric Haematology			58		58
Pediatric Thoracic Surgery			1		1
		1			1
	82				82
Neonatology			5	1	6
Alcohol Abuse		2		10	12
TOTAL	5,509	5,182	5,393	7,596	23,680

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TABLE 10

1994-95
Admissions from Emergency to Special Care Units and Beds Used at 100% Occupancy

	ICU		CCU		PICU		NICU		BTU		IC CU		RESP CU		Total		BEDS
	Cases	Days	Cases	Days	Cases	Days	Cases	Days	Cases	Days	Cases	Days	Cases	Days	Cases	Days	
CHED	324	1012	500	1637	214	918	5	45	0	0	0	0	0	0	1043	3612	9.895
GEN	616	4101	366	1373	0	0	0	0	350	2219	310	1081	0	0	1642	8774	24.03
HEND	335	1334	740	2268	0	0	2	9	0	0	0	0	0	0	1077	3611	9.893
StJos	413	2348	893	2168	0	0	0	0	0	0	0	0	166	2069	1472	6585	18.04
Total	1688	8795	2499	7446	214	918	7	54	350	2219	310	1081	166	2069	5234	22582	61.86
		24.09		20.4		2.515		0.147		6.079		2.961		5.668		61.86	

TABLE 11

1994-95

Admissions to Special Care Units from Emergency Units Beds Used at 100% Occupancy

	ICU BEDS	CCU BEDS	PICU BEDS	NICU BEDS	BTU BEDS	ICCU BEDS	RESP BEDS
Chedoke-McMaster	2.772	4.484	2.515	0.123	0	0	0
Hamilton General	11.23	3.761	0	0	6.079	2.961	0
Henderson General	3.654	6.213	0	0.024	0	0	0
St. Joseph's	6.432	5.939	0	0	0	0	5.668
Total	24.09	20.4	2.515	0.147	6.079	2.961	5.668

TABLE 12

CRITICAL CARE BYPASS: April - September, 1995

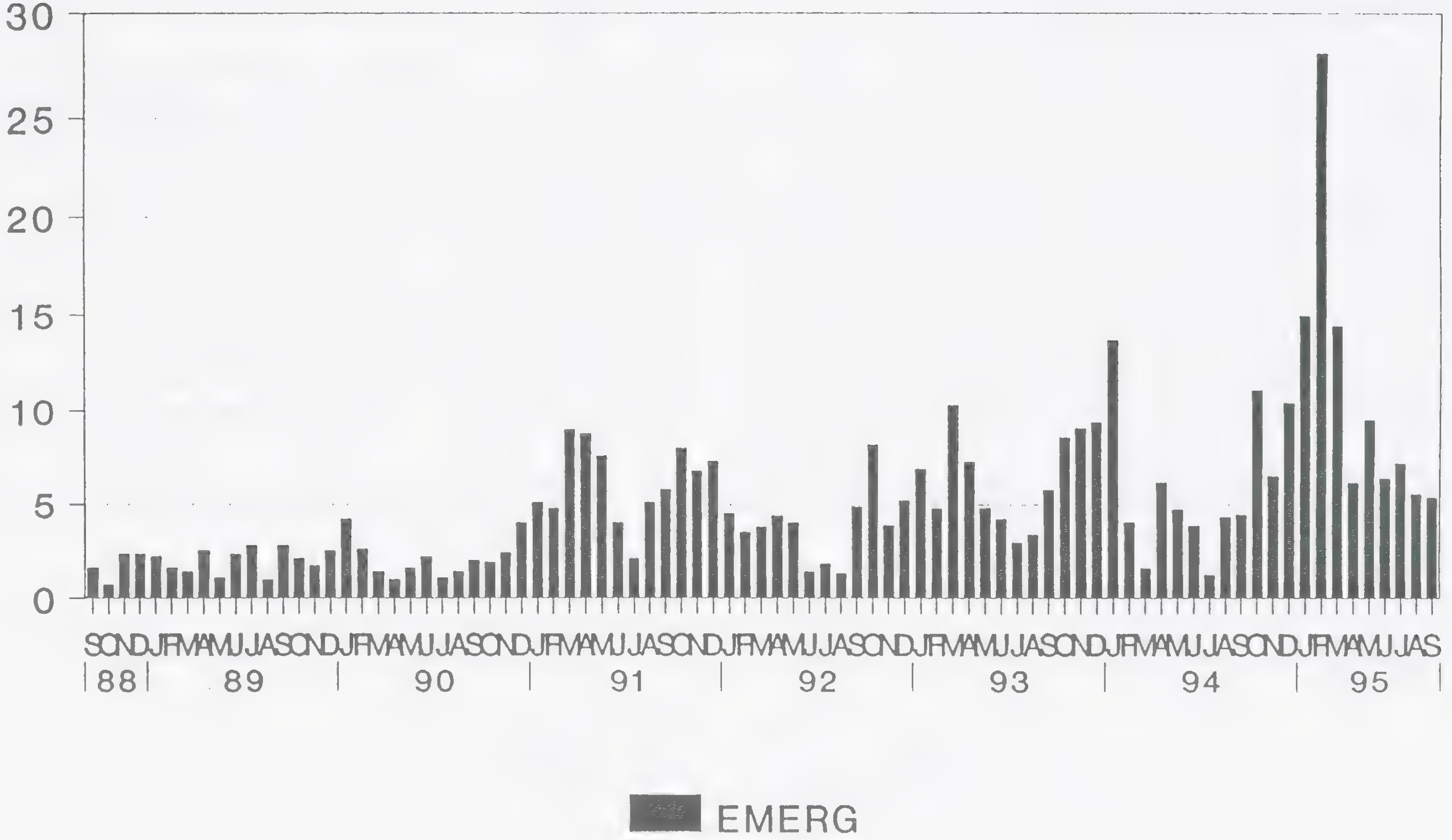
Location	# of Occurrences	Total Length (Minutes)	Average Time (Minutes)	% of Time
MUMC	88	13578	154.3	5.2
General	152	24132	158.8	9.2
Henderson	136	24028	176.7	9.1
St. Joseph's	128	18105	141.4	6.9

* On 33 occasions both lead and backup trauma centres were on concurrent CCB
* On 26 occasions, three Hamilton hospitals were on concurrent CCB
* On 10 occasions all four Hamilton hospitals were on concurrent CCB

FIGURE 6

HAM. SYSTEM OVERWHELMED

EMERGENCY % of TIME



HAMILTON

TABLE 13

EMERGENCY ROOM OPERATING BUDGETS, 1992-93
HAMILTON-WENTWORTH
PRE-PHYSICIAN OPERATING COSTS

	CHEDOKE[1]	McMASTER	HENDERSON	GENERAL	ST. JOSEPH'S	ST. JOSEPH'S UCC	TOTAL
Salaries/Benefits	1,012,421	1,965,198	$1,863,478	$3,231,491	$2,500,000	$ 910,349 [2]	$ 11,482,937
Medical/Surgical/Drugs	79,055	239,137	217,290	280,100	440,000	$ 127,172	$ 1,382,754
Repairs & Maintenance	600	1,393	n/a	n/a	n/a	$ 3,945	$ 5,938
Physicians' Fees	n/a	n/a	0	0	20,000	$ 0	$ 20,000
Other Supplies	20,786	54,138	45,768	54,431	n/a	$ 11,687	$ 186,810
TOTALS	$1,112,862	$2,259,866	$2,126,536	$3,566,022	$2,960,000	$ 1,053,153	$ 13,078,439

[1] Chedoke UCC - was 16 hour facility at time, now 10 hour

[2] Includes medical staff stipend

Source: Central West EHS Advisory Committee

Average Cost per Visit	Ched-Mac: $61.10	Civics: $90.03	St. Jos: $65.08	St.Jos UCC: $36.42	$67.83
Total 1992-93 Visits	55,194	63,226	45,577	28,912	192,809

TABLE 14

SELF REPORTED PATIENT INTENTIONS

CALLER INTENT PRIOR TO CALL	CALLER INTENT AFTER CALL
INTENT	% LOWER OPTION
Emergency Room	90%
Urgent Care Visit	89%
Physician Visit	64%
Physician Call	62%
Average	76%
Self-Care	--
Other	--
Decided to Wait	--

TABLE 15

DEFERRED EMERGENCY AND URGENT CARE VISITS

Deferred Emergency Room Visits		Deferred Urgent Care Visits	
ER Visit	10%	ER	0%
Urgent Care	2%	Urgent	11%
MD Visit	3%	MD Visit	9%
Call MD	39%	Call MD	16%
Self-Care	25%	Self-Care	32%
Will Wait	4%	Decided to Wait	7%
Other	17%	Other	25%

- Improved patient communication with family doctor
- Better utilization of health resources
- Improved customer satisfaction

EXHIBIT 1

TELEPHONE INFORMATION SERVICES

- Telephone Information Services: A Preliminary study of current services and trends. A Report prepared for the Task Force on other alternatives, April 27, 1995, Queen's Health Policy, Queen's University, Kingston, Ontario, 1995

- Report reviewed telephone options as a means of reducing non-emergent and non-urgent visits to hospital emergency units. Goals of services to help specific target groups.

- High demand for health information - lines exist for
  - general health
  - pediatrics

- Services could have a triage function to community services, and to reduce non-emergent and non-urgent visits to hospital emergency units (Telecare Poison Control).

Evidence

- Anecdotal evidence to support reduced costs and appropriate emergency and primary care utilization. Little hard evaluative data.

- Further study is needed.

Pre-Amble

- Deferrable needs can be met more cost-effectively outside the ER, and by the family doctor.

- Empower consumers to make appropriate choices; provide advice to special target groups; review impact on emergency and primary care systems.

Trends

- Growing demand by consumers for health information - most lines are increasing volumes. But access to information is problematic, especially physicians.

- Government have identified need to direct consumers to the most appropriate level of care, be it self-care, primary care or emergency care. A large proportion of visits to the emergency rooms are unnecessary and expensive. Self-care or non-urgent primary care is all that is really needed.

Case Studies / Provincial

- Manitoba - “Telephone advice has the potential to save the costs of unnecessary emergency units visits.”
- Newfoundland - Joint venture with New Brunswick Telecare.
- New Brunswick - Telecare explicit service to reduce non-urgent emergency unit visits in the Moncton area.
- Nova Scotia - Telephone Information seen as strategy for emergency health services reform.
- Ontario - Looking at feasibility of telephone services to reduce non-emergency and non-urgent visits to hospital emergency units.
- Quebec - Will decentralize telephone information and referral services to CLSC’s.

Organization

- Lines are not for health emergencies - only small % (<2%). Triage, or problem identification, unnecessary emergency visits are decreased. Evidence is anecdotal in Canada, with the exception of American studies.
- Very high consumer satisfaction with telephone lines - high number of repeat callers.
- Lines have referral components which empowers caller.
- Lines operated by health care professionals, medical records for each call and advice given.
- Well research-tested protocols / regular updates, revisions
- Sophisticated computer-driven algorithms
- Conservative system - assume worst case scenario
- Back-up physician on site or within a phone call way
- Lay presentation of information
- Assessment of caller’s understanding of instructions
- Pre-recorded message the line is not for emergencies (call 911)
- Recording of calls, including advice given
- Use of variety of reference material
- Disclaimer: Information does not replace medical attention
- Elaborate mechanisms to counter liability / some call back (confidentiality)

Conclusions

- Between 2 - 5% of all calls are emergent, 40 - 50% were referred to primary care. Emergency units often received the primary care referrals because it is the only way to see a physician in evenings, weekends or holidays. The remaining 45% could be managed at home with appropriate information and a call back from a health professional if necessary.

- Most lines have a disclaimer such as "this is not an emergency service", or . . . "if you have an emergency, hang up and call 911". But many consumers do not really understand the difference between an emergency / non-emergency.

- Therefore, these lines play in important triage role to triage callers to appropriate care.

- Strict treatment protocols are used before advice is provided. Lines err on the side of worst case scenario and callers encouraged to seek care through an emergency or primary care visit.

- Lines were not designed to replace primary or emergency health services or restrict access.

- American data showed reduced inappropriate emergency visits and contributed to cost savings. Canadian studies show similar results with anecdotal evidence.

- Majority of services run by nurses with a number of years of clinical experience and advanced training in telephone communication techniques. Critical importance.

- Mix of computer and manual systems. Must include call identification; call recording for legal back-up and training (or comprehensive documentation); traffic audit; automatic call distributor

- Costs: Government Grants, or global budget. Costs relate to direct labour. Fewer hardware, software costs.

- There is a relationship between marketing and calls received. Adequate advertising and promotion increases call volumes.
- But advertising and promotion is often left to health professionals hired to manage the system and have little time or skills. Many systems, however, are already at capacity.

- Lines often provided in urban settings. Multi-cultural is an issue.

- Medica-legal. Services provided by licensed professionals, with strict protocols, and documentation. Conservative management is an important measure - if uncertainty persists, a referral to primary care or emergency unit is made. Also, call back in 2 - 6 hours for some patients. Capacity problem impinges on call back.

- Specify if a confidential services - then call back not possible.

Ontario

- Some anecdotal evidence to support cost reduction and appropriate use of emergency and primary care services.
- Need more evaluation - not conclusive.
- Partner with Telecare, New Brunswick.
- Design a pilot project for Ontario.

Access Health Management System, California

- Trained nurses, provide triage function to direct callers to appropriate care or health library (audio tapes).
- Demand management system (CHMO-PPO)
- e.g. 400,000 potential callers: 90,000 calls, 9 minutes per call. N = 90,000 about 18,000 require follow-up
- 90,000 calls to audio library = 4 minutes per call
- 38 calls per nurse, per day
  - 28,800 on days
  - 28,800 on evenings
  - 4,000 calls nites

FTE	Weekends	Peak
2 08	2	4
2 04	2	4
1 04	2	2
5 16	6	10

- Efficiency is reached at 1 million calls a year
- Approximately 80 - 90% of potential emergency visits are redirected to clinics, family physicians or self-care
- Protocols are researched by teams of nurses and physicians, with a medical director involved Protocols reviewed regularly. Based on primary care standards of practice.
- Very little litigation.

Info Sante - Quebec

- Decrease in number of emergency visits and need for fewer nurses
- 1% emergent

Boulder Colorado - Access Health

- <1% of calls are emergent; 5 - 7 % urgent; 15% refer to GP when clinic opened; 15% telephone consultation with physician; 50 - 60% self-care managed.
- Physician back-up

Telecare

- Run with nurses trained in emergency care.
- Community of 150,000 - 2 ER's ① 42,000 visits
  ② 54,000
- 106 calls per day to Telecare, 17% or 18 per day, 6,570 or 6.8% decline in ER visits.
- Have started small pilot project.
- 2 Emergency physicians from the 2 hospital corporations sit on the Joint Management Committee.
- 4 FT, 6 PT RN - 24 hour service - 2 on days
  - 3 on evenings
  - 4 cubicles / stations

Referral

17% ER (was 24,23,23,19,) - National Health Software
40% GP or after hours clinic (in 12 hours)
23% Home Care
20% Other (self care, etc.)
100%

- Have inventory of ER's / GP Clinics / after hour Clinics / Family doctors
- Family doctors / ER doctors agreed / ER doctors paid by shift not fee for service
- Saving in New Brunswick through more regionalization and reduction in number of physicians.
- About 3.5% decline in ER visits (average).
- No real patient education, except admitting clerk gives brochure and sticker.

TABLE 16

* REDUCTION IN ER AND UCC VOLUMES by REFERRAL TO TELEPHONE TRIAGE/ADVICE LINE

	Volumes	% Reduction	#	Cumulative
Base year (1994-95)	200,000	0	0	0
Year one	200,000	6	12,000	12,000
Year two	188,000	6	11,280	23,280
Year three	176,720	6	10,603	33,883
Year four	166,117	--	--	--

*assumes referral to self or primary care

TABLE 17

IMPACT OF TELEPHONE/ADVICE LINE ON PATIENT ACUITY IN ER USING NURSING TRIAGE, NO GROWTH SCENARIO

	Current 1994-95		Projected 1998-99	
	#	%	#	%
Emergent	5,200	2.6	5,200	3.1
Urgent	170,400	85.0	152,486	91.8
Deferrable	19,600	9.8	8,431	5.1
Elective	4,800	2.4	0	0
TOTALS	200,000	100	166,117	100

PROJECTION OF EMERGENCY DEPARTMENT UTILIZATION USING INCREMENTAL DEMAND MANAGEMENT

TABLE 18

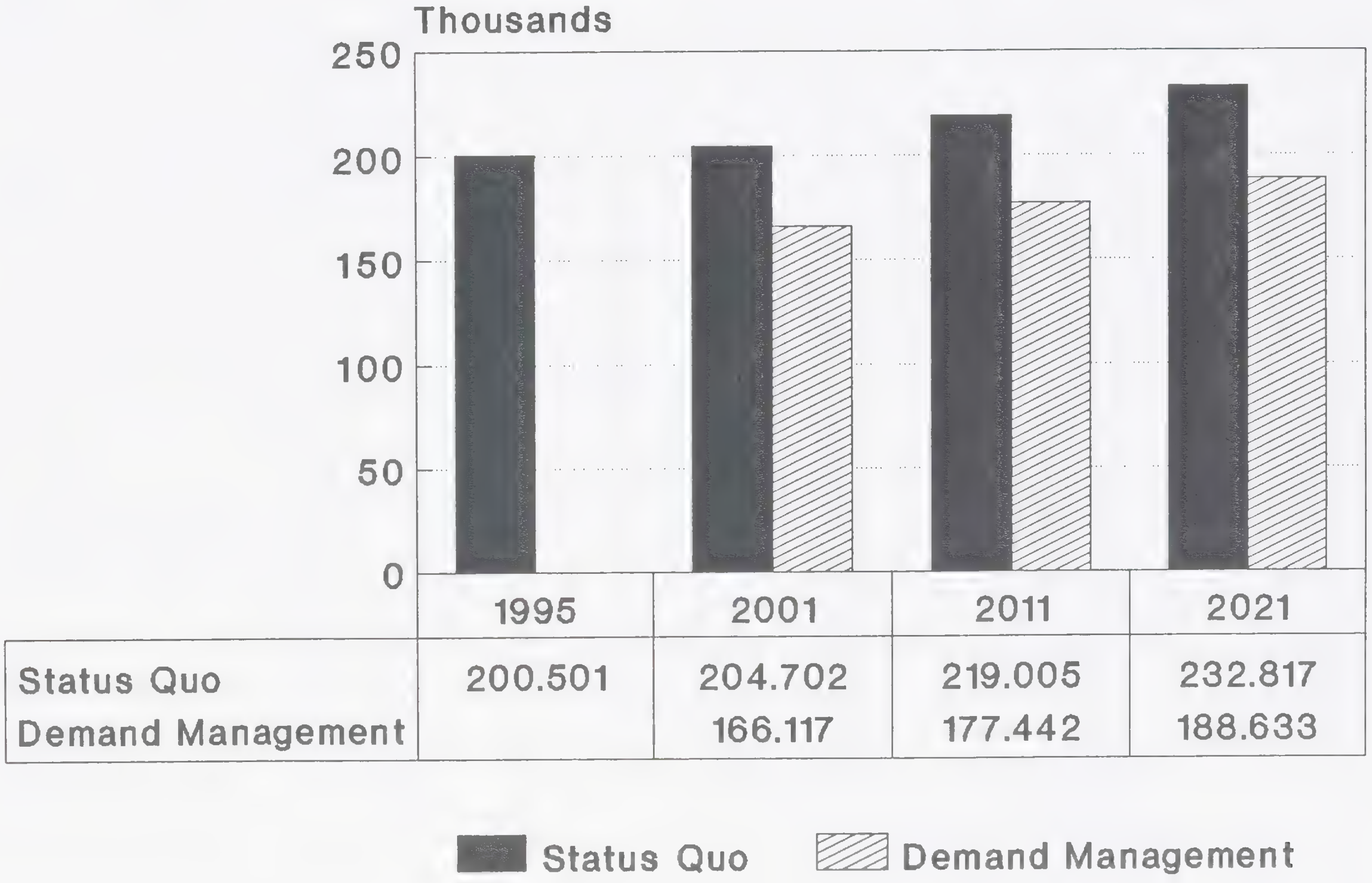
	Scenario I No Demand Management Rate: (411/1,000)	Scenario II Demand Management with Primary Care Rate: (333/1,000)
1995	200,501	--
2001	204,702	166,117
2011	219,005	177,442
2021	232,817	188,633

TABLE 19

	TRIAGE CODES 2001	TRIAGE CODES 2001
Emergent	5,322	5,322
Urgent	173,996	160,795
Deferrable	20,061	0
Elective	5,323	0
TOTALS	204,702	166,117

FIGURE 7

Projections of ER/UCC Utilization
Based on Demand Management Model



	1995	2001	2011	2021
Status Quo	200.501	204.702	219.005	232.817
Demand Management		166.117	177.442	188.633

(411/1000 vs. 333/1000 visits)

TABLE 20

ESTIMATE OF NEW VOLUMES FOR ER AND UCC SITES BY 2001, BASED ON DEMAND MANAGEMENT

	ANNUAL VISITS	EMERGENCY ROOM
McMASTER	26,578	26,578
CHEDOKE UCC	13,954	---
ST. JOSEPH'S	36,213	36,213
HENDERSON	28,240	28,240
GENERAL	30,898	30,898
ST. JOSEPH'S UCC	30,067	---
TOTALS	165,950	121,929

- Emergency Rooms required = 3 based on 45,000 visits. Public safety, costs and quality are a concern. Inpatient service co-dependencies at issue.

TABLE 21

ADJUSTED ER VISIT VOLUMES BASED ON RE-DIRECT OF DEFERRABLE CASES ONLY

	1994 - 1995 Actual Visit Volume[1]		1994 - 1995 Adjusted Visit Volume	
	#	%	#	%
Emergent	16,648	11.3	16,648	17.6
Urgent	77,789	52.8	77,789	82.4
Deferrable	52,890	35.9	0	0
TOTAL	147,327	100.0	94,437	100.0

[1] Using 1992 Physician Assessments

EXHIBIT 2

S.W.O.T. Analysis

Emergency Units, Hamilton-Wentworth

Strengths:

- well served with 4 hospital emergency units currently operating 24 hours per day
- residents have reasonable access across the city
- 2 facilities providing urgent care (St. Joseph's East End Community Health Centre open 16 hours, 8:00 a.m. - midnight and Chedoke-McMaster Hospitals Urgent Care open 10 hours per day, 12:00 - 22:00)
- access to REACH and Central Bed Registry Programs
- well regionalized critical care services
- paediatric, adult and neonatal CCTU Teams
- excellent pre-hospital care system comprised of paramedics, base-hospital and tiered response including firefighter defibrillation
- 911 coverage
- excellent teaching programs
- Hamilton General site for emergency specialty training
- Regional Emergency Psychiatry Program (EPT) at St. Joseph's Hospital
- Regional Quick Response Team (QRT)
- Bed management at McMaster reduced holdovers 50%
- Two Track development at St. Joseph's
- Excellent communication and cooperation between emergency departments
- Civics TQM Project to examine ER room processes and CCB issue
- Excellent nursing staff

S.W.O.T. Analysis
Emergency Units, Hamilton-Wentworth

Weaknesses:

Physical Plant	•	McMaster, Henderson, Chedoke, St. Joseph's (layout)
Linkages	•	ER system not well-coordinated with the primary care system across the city. Little information sharing both ways. Need better alliances between ERs, GPs and the public.
	•	Need innovative community support services to improve the level of primary care (e.g. technologies, innovation, organization).
Planning	•	Lack of true regional planning body with mix of providers/consumers to direct the vision of EHS for Hamilton-Wentworth based on needs-based planning.
Public	•	Public should be educated/empowered/assisted to know what is available and how to access the EHS system. Concentrate on changing patient behaviour and correct inappropriate utilization. Not an inconsistent role for the ER in unscheduled care.
Rationalization	•	Conflicting views ranging from too many ERs to acceptance of role in unscheduled urgent care and improve on performance for urgent care patients. Needs based planning never looked at systematically, e.g., two track/fast track systems.
Delays	•	Holdovers in the ERs has a major impact on quality and resources. Bed management n done well and not given serious attention.
Overwhelmed	•	Overcrowding in the ER wait times, and CCB.
Manpower	•	Recruitment and training of emergency physicians a national issue.
Catchment	•	Perception south mountain not served well.
Data	•	Lack of consistent regional ER data base, some hospitals have excellent local systems, but not utilized to full potential. Lack of linkages to pre-hospital, hospital and primary care system.
Other	•	Operational problems relating to teaching, service, standards, costs, streamlining processes, lack of medical beds, increased acuity and resource management.
Accountability	•	Perception of lack of authority of the regional program vs. independent facilities.

EMERGENCY OPTIONS IMPACT ON PATIENT CARE	**ACCESSIBILITY**	**APPROPRIATENESS (Quality/Need)**	**AFFORDABLE - COST EFFECTIVE**	**INTEGRATION / COORDINATION**
	Point of view of Patients, Physicians, Staff, Other Hospitals, etc.			
• Coordination with Primary Care System / Family Physicians	+ 0 -	+ 0 -	+ 0 -	+ 0 -
• Access to Primary Care Providers (technology)	+ 0 -	+ 0 -	+ 0 -	+ 0 -
• Regional Planning Body for EHS	+ 0 -	+ 0 -	+ 0 -	+ 0 -
• Public Education / EHS Access / Behaviour	+ 0 -	+ 0 -	+ 0 -	+ 0 -
• Consortium of Providers	+ 0 -	+ 0 -	+ 0 -	+ 0 -
• Needs Based Planning for Two-Track / Triage Systems	+ 0 -	+ 0 -	+ 0 -	+ 0 -
• Regional TQM Review of ER Access (Beds, CCB, Elective)	+ 0 -	+ 0 -	+ 0 -	+ 0 -
• Regional Data System / Planning and Clinical Uses / Linked at Primary Care	+ 0 -	+ 0 -	+ 0 -	+ 0 -

SCALE: + = positive 0 = neutral - = negative

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